RETENTION OF NURSING PERSONNEL PREPARED IN OFF-SITE AND ON-SITE EDUCATIONAL PROGRAMS

By

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TABLE OF CONTENTS

		PAGE
ACKNOWLEDGEMENTS		iii
LIST OF TABLES		vii
LIST OF FIGURES		x
ABSTRACT		xi
CHAPTER		
I	INTRODUCTION	1
	Statement of the Problem	3
	Need for the Study	5
	Limitations of the Study	7
	Definitions	8
	Organization of the Remainder of the Dissertation	9
II	REVIEW OF THE LITERATURE	11
	The Theoretical Constructs	11
	Determinant and Intervening Variables in Employee Retention and Turnover	15
	Correlation Studies in Employee Turnover	24
	Summary and Conclusions on the Literature Review	30
III	METHODOLOGY	34
	Research Strategy	35
	The Sample Population	36
	The Hypotheses	36
	Instrumentation and Data Collection	37
	Analysis of Data	38

IV FINDINGS..... 41

Demographic Variables..... 42
Gender..... 42
Age..... 42
Marital Status..... 44
Dependents..... 46
Wages..... 49
Church Membership..... 51
Educational Level..... 52
Commuting Distance..... 54
Jobs Held..... 56
Organizational Variables..... 58
Secondary to Postsecondary Distance..... 58
Postsecondary to First Job Distance..... 60
Reasons for Termination..... 63
Predictive Variable..... 65
Length of Service..... 68
Comparison of Seventh-Day Adventist and non-Seventh-Day Adventist Nurses..... 76
Gender..... 76
Secondary to Postsecondary Distance..... 77
Educational Level..... 79
Postsecondary to First Job Distance..... 80
Age..... 82
Marital Status..... 83
Wages..... 85
Length of Service..... 86
Commuting Distances..... 87
Jobs Held at Termination..... 92
Reasons for Termination..... 94
Summary of Findings..... 94

V SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS..... 100

Introduction and Summary..... 100
Discussion and Conclusions..... 103
Recommendations..... 109
Closing Statement..... 110

APPENDIX..... 111

REFERENCES..... 113

BIOGRAPHICAL SKETCH..... 118

LIST OF TABLES

TABLE		PAGE
1.	Comparison of Gender Distribution Between Sample Groups	43
2.	Comparison of Entry Ages Between Sample Groups	43
3.	Comparison of Termination Ages Between Sample Groups	44
4.	Comparison of Entry Marital Status Between Sample Groups	45
5.	Comparison of Termination Marital Status Between Sample Groups	46
6.	Comparison of Entry Number of Dependents Between Sample Groups	47
7.	Comparison of Termination Number of Dependents Between Sample Groups	48
8.	Comparison of Entry Wages Between Sample Groups	50
9.	Comparison of Termination Wages Between Sample Groups	50
10.	Comparison of Entry Religious Preference Between Sample Groups	52
11.	Comparison of Entry Educational Degree Levels Between Sample Groups	53
12.	Comparison of Termination Educational Degree Level Between Sample Groups	54
13.	Comparison of Entry Commuting Distance Between Sample Groups	55
14.	Comparison of Termination Commuting Distance Between Sample Groups	56
15.	Comparison of Jobs Held Between Sample Groups	57

16. Comparison of Secondary to Postsecondary Distance Between Sample Groups..... 59

17. Comparison of Secondary to Postsecondary Distance Between Sample Groups (Nominal Coding)..... 60

18. Comparison of Postsecondary to First Job Distance Between Sample Groups..... 61

19. Comparison of Postsecondary to First Job Distance Between Sample Groups (Nominal Coding)..... 62

20. Comparison of Reasons Given for Termination Between Sample Groups..... 64

21. Comparison of Length of Service (in Weeks) Between Sample Groups..... 69

22. Comparison of Length of Service (in Periods of Twenty-five Weeks) Between Sample Groups..... 71

23. Comparison of Gender Distribution Between SDA and non-SDA Nurses..... 77

24. Comparison of Secondary to Postsecondary Distances Between SDA's and non-SDA'S..... 78

25. Comparison of Secondary to Postsecondary Distances Between SDA's and non-SDA's (Nominal Coding)..... 79

26. Comparison of Educational Levels Between SDA Nurses and non-SDA Nurses..... 80

27. Comparison of Postsecondary to First Job Distance Between SDA and non-SDA Nurses..... 81

28. Comparison of Postsecondary to First Job Distances Between SDA and non-SDA Nurses (Nominal Coding)..... 82

29. Comparison of SDA and non-SDA Nurses Entry Ages Between Sample Groups..... 83

30. Comparison of SDA and non-SDA Nurses Termination Ages Between Sample Groups..... 84

31. Comparison of Entry Marital Status Between SDA and non-SDA Nurses..... 84

32. Comparison of SDA and non-SDA Nurses Entry Wages Between Sample Groups..... 85

33. Comparison of Termination Wages Between SDA and non-SDA Nurses..... 86

34. Comparison of Length of Service Between SDA and non-SDA Nurses..... 87

35. Comparison of Length of Service (in Periods of Twenty-five weeks) Between SDA and non-SDA Nurses..... 88

36. Comparison of Entry Commuting Distances Between SDA and non-SDA Nurses..... 92

37. Comparison of Termination Commuting Distances Between SDA and non-SDA Nurses..... 92

38. Comparison of Jobs Held at Termination Between SDA and non-SDA Nurses..... 93

39. Comparison of Reasons for Termination Between SDA and non-SDA Nurses..... 95

LIST OF FIGURES

TABLE		PAGE
1.	Frequency Distribution of Leavers for 1942 Entrants to the Glacier Metal Company	13
2.	Price and Mueller's (1981) Causal Model of Turnover	28
3.	Kettering Medical Center Turnover of Registered Nurses 1972 - 1982	72
4.	Florida Hospital Turnover of Registered Nurses 1972 - 1982	73
5.	Comparison of Kettering Medical Center and Florida Hospital Turnover of Registered Nurses 1972 - 1982	74
6.	Comparison of Kettering, Florida and Glacier Metal Company Turnover	75
7.	Turnover of Seventh-Day Adventist Registered Nurses 1972 - 1982	89
8.	Turnover of non-Seventh-Day Adventist Registered Nurses 1972 - 1982	90
9.	Comparison of Seventh-Day Adventist and non Seventh-Day Adventist Registered Nurses 1972 - 1982	91

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By

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The purpose of this study was to determine if the operation of an on-site postsecondary educational program had any influence on the hiring and retention of nursing personnel compared to a similar size hospital lacking an on-site program. Four null hypotheses were proposed, postulating no significant difference would be found between the groups on demographic features, identification of predictor variables, or length of service. The study compared the two groups on the demographic variables of gender, age, marital status, length of service, job, church membership, commuting distance, number of dependents, wages, and educational level. Organizational variables compared included the distance between the secondary and postsecondary training institution, the distance between the postsecondary institution and location of the first job, length of service, and reason for termination.

The samples studied were randomly selected from the population of registered nurses who terminated their employment between July 1, 1972, and June 30, 1982, with the hospitals contributing the samples. The hospitals, owned and operated by the Seventh-Day Adventist Church, each contributed half of the 400 cases studied. Kettering Medical Center, in Kettering, Ohio, operates a postsecondary training program for nursing and the allied health fields. Florida Hospital is contemplating the establishment of a similar program but was without such a program during the period studied.

Conclusions: Three of the four hypotheses tested were accepted. In general there were no differences between the demographic and organizational variables, leading to acceptance of the first hypothesis. Stepwise regression techniques failed to identify variables with predictive value in assessing the probable length of service for prospective employees. This failure led to an acceptance of the second hypothesis. Comparison of the length of service between the two groups showed no difference in the length of service, leading to an acceptance of the third hypothesis.

The fourth hypothesis postulated no differences between nurses belonging to the Seventh-Day Adventist Church and those who did not. Significant differences were discovered in the number of males, mobility, educational degree, length of service, and position held at termination.

CHAPTER I

Introduction

Many hospitals throughout the United States have had difficulty retaining nursing personnel. This study was designed to determine which selected variables had predictive value in the retention of nursing personnel. The careful identification of determinant variables is important if hospitals are to improve retention of nursing staff. This study was designed to determine the relationship between selected demographic and organizational variables (factors) and retention of nursing personnel.

The high turnover of nurses is a costly problem for which there is no easy solution (Demkovich, 1981; McNally, 1981; Moses and Roth, 1979; Odell and Woods, 1980; Scheffler, Yoder, Weisfeld, and Gloria, 1979). This study will attempt to shed light on this problem. Hopefully, a model can be developed that will show which demographic and organizational variables may be used to predict the retention of nursing personnel.

The literature suggests fewer women are choosing nursing as a career. Authors allege these trends primarily result from relatively low pay (Buys, 1981), women's rights expressed through affirmative action (Horty, 1980; Steck, 1981), and deteriorating professional relationships with other medical professionals (Friss, 1981; Moore, 1979).

Despite the general economic malaise and changes in women's career patterns, Florida Hospital in Orlando, largest of the 447 health care institutions operated by the Seventh-Day Adventist Church, has operated at capacity for much of this period, with occasional closing of admissions to other than emergency patients. Whether the recession and the social changes affecting women have had an impact on the availability of services at Florida Hospital is not known. Recruiting and retaining sufficient qualified nursing personnel to meet the demand continue to be a problem. Actions taken by the hospital to meet these needs include increasing the size of the Licensed Practical Nursing (LPN) School operated by the hospital, sponsoring scholarships at two of the nearby community colleges, operating clinical rotations from the nearest church-related college (Southern College of Seventh-Day Adventists, Collegedale, Tennessee) in the bachelor's degree program and, most recently, initiating an associate degree program at the hospital. The hospital is generally recognized in the Orlando area as offering the best salary and fringe benefit package available from a non-profit organization. The hospital has also explored such avenues of combating the shortage of nurses as retraining (Smith, R. B., 1979), recruitment incentives (Lewis, 1980), expanding professional roles (Munshaw, 1980), providing mentors (Hohman, 1979), funding internships (Holmes, 1981), and providing supplemental staffing (Anzalone, 1980).

One underlying assumption for the operation of educational programs is that the operation of a local postsecondary program is the best, and possibly only, way to assure an adequate supply of qualified nursing personnel.

Therefore a key variable examined in this study was whether the operation of an on-site educational program was effective in instilling in the graduates from a program a commitment to work for the future employer. A program comparable to the one envisioned for Florida Hospital has operated at Kettering, Ohio, since 1969. Also operated by the Seventh-Day Adventist Church, it is conducted as a two-year college (Kettering College of the Medical Arts) largely through the support of Kettering Medical Center. The institutions share the same campus, with the dean of the college under the direction of the chief executive officer for the hospital.

Statement of the Problem

The problem was to determine whether certain selected variables have predictive effect upon the retention of nursing personnel. A second aspect of the problem was to determine whether the operation of postsecondary educational programs was related to retention of nursing personnel in hospitals with on-site and off-site educational programs. This study was primarily concerned with the comparison of selected demographic and organizational variables that contributed to the retention of nursing personnel. As a matter of policy, would the establishment of a two year nursing degree program on hospital property improve the retention of nurses following graduation from the program?

Quantification of an individual's commitment to an employer was difficult because of the numerous variables from the person's personal and professional life that interact with the job and organizational characteristics of the employer. The personnel records of the

populations studied were examined to determine which factors were most influential to the retention of individual nurses.

The null hypotheses tested were as follows:

I. There are no differences in the status of each demographic and organizational variable of the groups contributing samples.

II. There is no relationship between certain selected demographic and organizational variables and the retention of nursing personnel.

III. There is no relationship between retention of nursing personnel in hospitals and the existence of on-site and off-site postsecondary educational programs.

IV. There are no differences in the status of each demographic and organizational variable of Seventh-Day Adventist and non-Seventh-Day Adventist nurses.

The design of the study made it possible to distinguish between these factors on the basis of selected linear combinations that included demographic and organizational characteristics. The two populations studied were equal sized samples taken from Florida Hospital and Kettering Medical Center.

Demographic variables regarding the status of individuals, collected at employment and termination, included age, date, job, church membership, commuting distance, number of dependents, educational level, wage and marital status.

Organizational variables examined included the distances between the secondary school, the postsecondary (training) institution, and the employing organization. Data on the professional variables of employee length of service and reason for termination were collected and analyzed.

Need for the Study

Concurrent with the expansion of community colleges, diploma schools of nursing began to decline as postsecondary nursing education moved from community hospitals to community colleges. During the 1950s Florida Hospital closed its nursing school. Following the closing of the school, the hospital affiliated with Southern Missionary College in Collegedale, Tennessee, for the baccalaureate program. This program has made a contribution to the staffing needs of the hospital but has fallen short of meeting the need.

In the fall of 1981, the chief executive officer for the hospital suggested a study of the feasibility of establishing a college to offer associate degree programs in nursing and the allied health professions. This college would be modeled after a similar program operated by Kettering Medical Center, Kettering, Ohio (also operated by the Seventh-Day Adventist Church).

A feasibility study of that magnitude is a large undertaking, involving many groups within, and external to, the organization. The premise is that the operation of an associate degree program on the campus occupied by the hospital will make a significant contribution to the institution's ability to recruit and retain nursing personnel.

The nursing shortage as a national phenomenon has been covered in government, professional and popular press (Fralic, 1980; Richards, 1980; Sandroff, 1980).

A survey of state-approved schools of nursing (1980) showed a decline in enrollments for the first time in nearly two decades (Novicky, 1981). This decline comes at a time when the intensity of nursing services is on the increase. The average length of stay for hospitalized patients is becoming shorter, while technology provides better diagnostic services, and the general population grows older. Studies by the American Hospital Association show that in 1972, 50 registered nurses were required for each 100 community hospital patients. By 1980 it had grown to 73 registered nurses for each 100 patients, a 43% increase (American Hospital Association, 1981).

President Carter vetoed a bill in 1978 (Cunningham, 1979; White, 1979) that would have extended federal support to the disadvantaged wishing to study nursing, on the basis that the country would have a surplus of nurses by 1985.

The difference between government projections and reality stems from using statistical models developed in the early 1970s. The use of these models for projections, outdated because they have failed to take into account this increase in intensity, has resulted in a shortage of nurses that some see lasting into the next century (Durbak, 1982; Sands, 1981).

Identifying determinant variables related to length of service would assist in recruiting personnel who are more likely to be retained by the employing organization. Employment practices and job definitions

could be revised to better suit the needs of prospective employees. The question of locating the educational institution on-site versus off-site carries important implications for other large community hospitals facing a shortage of nursing personnel for years to come.

Limitations of the Study

The study population was limited to a random sample of 400 registered nurses who had terminated employment at Florida Hospital and Kettering Medical Center between July 1, 1972, and June 30, 1982. Each institution contributed half of the total sample.

This study was limited to cases that had occurred between 1972 and 1982, a time period when the Kettering program was fully developed, and no associate degree program was offered at Florida Hospital.

Another limitation of this study is that no attempt was made to account for internal turnover such as promotion within the organization during tenure of the professional with the hospital nor was there a concern with job satisfaction. By its nature this ex post facto study precludes access to this variable.

An additional limitation was the generalizability of the findings. Findings may have implications for the entire health care industry, but the limitations of the specific population sampled would not support such conclusions.

A delimitation of this study was that data were collected from personnel records and were not based on the recollections of individuals being studied.

Definitions

The following operational terms were used in this study:

Age - the chronological age of the individual upon joining and at termination of the employment.

Church membership - whether an individual is a member of the Seventh-Day Adventist Church.

Commuting distance - the distance in miles between the individual's primary residence at the times of employment and termination.

Date - the month, day and year the individual was employed or terminated employment.

Demographic variables - the characteristics of individual members of the population being studied, including age, dates of employment and turnover, job, church membership, number of dependents, educational level, wage, and marital status.

Dependents - persons other than the spouse living in the same domestic dwelling, and being financially dependent on the individual under study.

Educational level - the highest formal degree that has qualified the individual for licensing and work as a registered nurse.

Involuntary turnover - the quitting of a job due to circumstances beyond the control of the nurse, i.e. death, retirement, dismissal, layoff. Most involuntary turnover is generally thought of as originating with the organization, and not initiated by the employee.

Job - the description of those duties assigned to the individual under study as part of the employment relationship.

Length of service - the total time in months that an employment relationship was maintained by the individual.

Marital status - whether or not the individual was legally married at time of employment or termination.

Organizational variables - the characteristics or a relationship between the individual and the employing organization that influence the person to feel a sense of commitment to the employer. They include proximity of postsecondary institutions, educational level, length of service, and reason for termination.

Primary distance - the distance between the postsecondary (training) institution and the employing organization.

Reason for termination - the reason offered by the individual at the time of termination for the cessation of the employment relationship.

Recruitment - the process of offering incentives or rewards to prospective employees so that they will make a decision to join the organization.

Registered nurse - an individual having attained a diploma, associate or baccalaureate degree and subsequently became licensed through the state board examination required of registered nurses.

Retention - the ability of an organization to win the continuing decision of employees to stay on as employees, rather than leave the organization.

Secondary distance - the distance between the secondary school of graduation and the first year of postsecondary training.

Turnover - the amount of individual movement across the employment relationship with an organization. The process involves becoming employed, working for some interval of time and ends in termination of the relationship through voluntary or involuntary means. For the purposes of this study, the investigation was not concerned with that turnover internal to the organization.

Voluntary turnover - to quit or resign for any reason the individual may choose. To terminate one's employment with an organization.

Wage - the hourly rate of pay at the time of employment and at the point of termination.

Organization of the Remainder of the Dissertation

Chapter II presents a selective review of the literature as related to the nature of retention, its theoretical framework, measurement and problems. The chapter concludes with a description of implications for the future.

Chapter III describes the development of the research design, the hypotheses, the methodology, instrumentation, sample population, and analysis procedures.

Chapter IV presents the findings of the statistical analyses and summarizes the results.

Chapter V presents a brief overview of the study and the findings, discusses the conclusions, and suggests areas for future research.

CHAPTER II

REVIEW OF THE LITERATURE

Some of the first studies of labor turnover and retention made early in this century have little relevance to this study (Slichter, 1919; Mayo, 1924). The majority of research in the field of labor turnover has been done since the 1950s. Little work has been done to establish a clear theoretical basis for explaining labor turnover since the majority of research has shown great variability between organizations, professions, social strata, educational level, etc. Another area of interest has been concerned with the identification of determinant and intervening variables in employee retention and turnover. Correlational studies have dealt with the identification of predictor variables that will enable employers to assess the likelihood of a prospective employee to have a longer length of service, thereby reducing the costs generated by high employee turnover. The chapter concludes by identifying several of the key trends in the growing field of studying employee turnover.

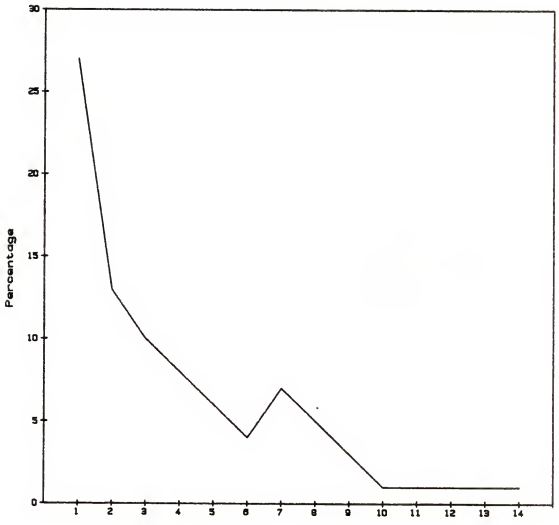
The Theoretical Constructs

An early study, The Representation of Turnover as a Social Process (Rice, Hill and Trist, 1950), dealt with employee turnover as a process. Rice and his colleagues described three main phases of employee turnover:

1. The period of induction crisis, during which a certain number of casualties result from the mutual interaction between the engaging company and the entrant group.
2. The period of differential transit, during which those who have survived learn the ways of life of the company and discover to what extent they have any place in it.
3. The period of settled connection, when those who have survived the above two periods take on the character of quasi-permanent employees(p.359).

These phases represent periods through which any group of entrants to an organization must pass. The demarcation of the phases can be observed in graphing the frequency distribution of leavers by time, measured at intervals of 25 weeks. Figure 1 depicts the frequency distribution of their findings, with percentage of leavers on the vertical axis and the 25-week periods studied on the horizontal axis. These findings were based on data collected in 1942 on new employees of the Glacier Metal Company. Price (1977) gave these findings little credence, contending they have not been proven empirically. His criticism of Rice et al. (1950) was that the authors did not collect data to demonstrate that every entrant went through all or some combination of the three phases.

In applying the component of induction crisis period to the study of staff nurse turnover in neonatal intensive care units, Duxbury and Thiessen (1979) found that the crisis period tended not to disappear after the characteristic 6-12 months.



Note: Drawn using data from "The representation of labor turnover as a social process" by A. K. Rice, J. M. M. Hill, and E. L. Trist, Human Relations, 1950, 3, 357.

FIGURE 1: Frequency distribution of leavers for 1942 entrants to the Glacier Metal Company (Rice, Hill and Trist, 1950). One period equals 25 weeks.

Their findings suggest that the induction crisis period is supplanted by stresses of the job, including such reasons as mismatch between job and employee, unrealistic job expectations and adapting to new working conditions and fellow employees. They further argue that these stresses are equal in magnitude to the induction crisis period and tend to taper off in the third year of employment.

According to Rice et al. (1950), the induction crisis period typically lasted for four weeks for the entrants to the Glacier Metal Company. Rice defined the indicators between the induction crisis period and the differential transit as "that point at which the initial positive acceleration in numbers leaving changes to negative acceleration"(p.359). This was followed by the differential transit period of 255 weeks (nearly five years). He defined the change from the differential transit to the settled connection period as "the time when the numbers leaving in successive periods are the same"(p.359). Separation from the organization marks the end of the settled connection period at typically 338-363 weeks (seven years), although many employees become permanent employees by this point in their careers.

Consolvo (1979) examined nurse turnover in the newborn intensive care unit (ICU) in an attempt to identify the influential factors. Her concern was a seemingly high turnover rate, resulting in poor care delivered by newcomers, and the high costs associated with their orientation. Findings determined that the stress or excitement that initially attracted the nurses to work in the ICU may eventually drive them to leave. Graphic representation of the data is similar to the curve described by Rice et al. (1950).

The management strategy became one of identifying job stresses and subsequently how to reduce them. Over a three-year period, the implementation of new programs led to a significant reduction in nurse turnover. New programs included nurse participation in decision making, revised staffing practices, and development of a strong commitment to continuing and inservice education.

The above authors dealt with turnover as a process; however, the majority of research associated with turnover has been concerned with the determinant and intervening variables, and their predictive value.

Determinant and Intervening Variables in Employee Retention and Turnover

The majority of research in employee retention and turnover has addressed those determinants and aspects of a given job that cause persons to become dissatisfied to the point of voluntarily leaving an organization. The research seems to cut across all fields, with attention focused on professions, or labor work forces. One aspect of retention involves certain personal and role-related factors as they relate to the individual's commitment to the organization.

Hrebiniak and Alutto compared 395 registered nurses in three general hospitals with 318 elementary and secondary school teachers in Western New York (1972). The individual characteristics studied included sex, age, marital status, intentions to pursue advanced education, occupation of father, religion, and two personality traits: levels of interpersonal trust and authoritarianism.

Role-related variables included measures of professional role conflict, dissatisfaction, role tension and the total number of years in the organizational role. Multivariate analyses revealed significantly ($p<.001$), that nurses experienced greater professional role conflict, and less dissatisfaction with reward policies and career advancement, than teachers. Nurses to a greater extent than teachers felt that their employing organizations were interfering with professional role activities. Teachers expressed greater dissatisfaction with the reward system of their organizations.

In a study on the influence of rewards and incentives on staff nurse turnover, McCloskey (1974) examined many of the same variables to identify and rate specific rewards and incentives which hospital staff nurses reported would keep them on the job. Variables included age, marital status, spouse's income, educational background, salary, specialty area, and length of time on the job. Specifically, seven hypotheses were tested

1. Younger nurses leave jobs sooner than older nurses.
2. Single nurses stay on the job longer than married nurses.
3. Married nurses whose spouses make under $10,000 per year leave jobs sooner than nurses whose spouses make over $10,001 per year.
4. Diploma nurses stay on the job longer than baccalaureate nurses.
5. Nurses who were highest paid in their last nursing job stayed on the job longer than those who were lower paid.

6. Among nurses, new graduates leave jobs sooner.

7. A nurse's specialty area influences the length of time she stays on the job.

Significantly ($p<.001$), younger nurses left jobs sooner than older nurses and single nurses stayed on the job longer than married nurses. Level of education (i.e. diploma versus baccalaureate), marital status, spouse's income, specialty area and length of time on the job did not influence turnover.

Professional autonomy appears to be a more important factor for persons who gravitate to faculty positions, since they are generally unable to achieve the level of autonomy they need in the profession (Grandjean, Aiken, and Bonjean, 1976). These findings were based on the analysis of responses by 171 faculty members in four state universities during 1973-74. Each respondent was presented with a list of 21 job characteristics that had been previously validated by a member of the team. Spearman rank order correlation coefficients of the four groups revealed a significant agreement in the rankings of the characteristics between the groups.

London and Klimoski explored self-esteem and job complexity as moderators of self-, supervisor, and peer ratings of performance and satisfaction with work (1975). Their subjects included 202 female registered nurses at four hospitals in the Columbus, Ohio area. The instrumentation included the Job Descriptive Index (Smith, Kendall and Hulin, 1967), Ghiselli's Self-Description Inventory (1971), and an eclectic questionnaire.

A median split was employed to divide the sample into groups of high and low self-esteem, and three levels of job complexity. Analysis of variance showed significant main effects for the high and low self-esteem groups with self-esteem as the dependent variable. Both analysis of variance and correlational analysis were performed to evaluate the potential effects of self-esteem and complexity. Self-ratings of performance, satisfaction with work, and satisfaction with peers had maximum values at optimal complexity and lower values at non-optimal levels of complexity.

A similar study to examine factors that influence or serve as predictors of turnover was undertaken with 96 voluntarily terminated females who had been employed by the San Diego Navy Credit Union. The theoretical basis for this study was taken from Porter and Lawler's expectancy/valence theory (1968). Variables studied included marital status, husband's occupation, months on the job, age at application, number of children at the time of application, age of youngest child, and number of months in local vicinity. The sample was rank ordered on the criterion score, and then paired and split prior to analysis. One subject of each pair was then randomly assigned to the regression analysis sample. Stepwise linear multiple regression was computed with a complete accretion-deletion procedure with the number of months on the job as the criterion variable.

The findings revealed that, as salary received approached the level expected, personnel were less likely to turn over. Age was inversely associated with turnover; the longer an employee was on the job, the less likely that person was to leave.

The variables of age, number of children, age of youngest child and marital situation at application were considered collectively as indices of family responsibility, correlating significantly. The level of education correlated negatively with months on the job, indicating that as people become more highly educated, they are more aware of whether they are using those skills gained through formal education. In cases where they perceived not being adequately used, they tended to turn over more frequently (Federico, Federico and Lundquist, 1976).

Wagner, Loesch, and Anderson (1977) constructed a Nursing Job Satisfaction Questionnaire (NJSQ) to study many of the same variables but paying particular attention to extrinsic or intrinsic rewards. The findings were generally similar; however, different jobs, e.g. coronary intensive care versus medical-surgical nurses, varied on their ranking of components, indicating different preferences by roles.

A major study at a Detroit hospital examined leadership behavior and social power variables in predicting job tension, performance and turnover of nursing employees (Sheridan and Vredenburgh, 1978). The measurement instrument was the Leader Behavior Description Questionnaire developed by Stogdill (1963). The two sets of predictor variables were leadership behavior and social power. The moderating variables were the subordinate's task structure and perceived locus of control, and the three criterion variables were subordinate's job tension, job performance and decision to terminate employment. Findings indicated that the criterion measures used had some small predictive value in

assessing job tension, performance and turnover. Their findings were more significant for leadership effectiveness than for nurse turnover.

A study was undertaken to explore the traditional method of categorizing employee turnover as voluntary or involuntary (Dalton, Krackhardt, and Porter, 1981). The authors suggest that a better way to structure the dichotomy is functional versus dysfunctional. Functional is when an employee wants to leave the organization and the organization is unconcerned. Dysfunctional is when an employee wants to leave the job but the institution wishes to retain the employee. This study was based on 1,389 employees of western bank branches, which also considered both the replaceability and quality of departing employees. The results indicated substantial levels of functional (71%) and unavoidable (52%) turnover, which suggest that the traditional dichotomy of voluntary and involuntary may substantially overstate the impact.

Mowday, Stone and Porter (1979) explored a related area in researching the interaction of personality and job scope in predicting turnover. Instrumentation for this study included Form A of Jackson's (1967) Personality Research Form to measure the strength of employee needs. Perceived job scope was measured using a 13-item instrument developed by Stone (1974). The sample compared machine operators (low-scope job) with scientific and technical personnel (high-scope job). No direct relationships were found between personality and turnover. However, correlational analysis within job scope and personality had predictive value for turnover. For employees on high-scope jobs, turnover was negatively related to the need for

achievement and positively related to the need for affiliation. Turnover was negatively related to the need for affiliation among employees on low-scope jobs.

A subsequent study (Bartol, 1979) questioned individual versus organizational predictors of job satisfaction and turnover among computer professionals. The instrumentation for this study used the 20-item Manifest Needs Questionnaire developed by Steers and Braunstein (1976) using Likert-type scaling. The subscales include autonomy, collegial maintenance of standards, ethics, professional commitment, and professional identification. Subjects were sent a questionnaire by mail along with a letter explaining the study. A follow-up questionnaire was sent the following year, resulting in a response rate of 94.8 percent of the original respondents. Organizational variables were found to be significantly predictive of satisfaction with all aspects of the job, and were the only significant predictors of turnover. Organizational variables were shown to be more important than were individual variables. Several authors have suggested that these findings will be a key ingredient in shaping the future role of the nursing professional (Mahaffy, 1980; Germain, 1980).

Silber (1981) proposed a motivation pyramid in nurse retention, much like Maslow's hierarchy, suggesting that the lower layers provide a foundation for the next. These were the layers from bottom to top

1. Biographical background for each individual nurse.
2. Job perception each nurse has for the specific job.
3. Feeling of value of work in the eyes of the nurse.

4. Feeling of association with job or organizational commitment.

5. Feeling of personal and job importance.

He also used the other dimensions or faces of the pyramid in the conceptualization of this model but made no attempt to support its theoretical base through research of his own or others.

Shift work is frequently mentioned in the popular press as a source of nurse dissatisfaction with work. A study of 440 nurses and 383 manufacturing workers which looked at the relationship between shift schedules and mental health, job satisfaction, social participation, organizational commitment, anticipated turnover, absenteeism and tardiness indicated that fixed work schedules produced more satisfied workers (Jamal, 1981). Instrumentation included a 21-item scale developed to tap Kornhauser's six indexes of mental health (Kornhauser, 1965), job satisfaction as assessed by the Brayfield and Rothe (1952) scale, and organizational commitment by Porter and Smith's scale (1971). The variables of age, marital status, place of socialization, cultural background, seniority and sex were analyzed as well but none were reliable predictors across both groups. In the sample of nurses, marital status turned out to be relevant. Married nurses on fixed shifts showed higher organizational commitment than single nurses. Not one of the criterion variables out of eight variables was found that had the same interactive effects on both samples; however, within groups some moderators seemed to be more crucial than others.

A major study by Jones, Tholen, Feller and Dunlap (1981) of nurse retention in burn care at the University of Michigan Medical Center analyzed data for turnover because of the high rate experienced (134%). The study attempted to identify factors that aid retention. Data were collected from the employment records of 134 nurses who worked in the burn unit over a four year period and compared with the records of 257 nurses from a medical intensive care unit and a general care unit. Age and previous experience did not contribute significantly; however, nurses with the associate degree had a better retention record than either diploma or baccalaureate nurses. A result of the research was the initiation of a program to improve nurse morale and retention. The program includes education of personnel to the needs of the unit, recognition of nursing as a resource, open communication, and realistic staffing and scheduling.

Weisman, Alexander and Chase (1981) reported the findings of a study of 1,259 nurses at two university hospitals. The study was designed to investigate organizational and non-organizational determinants of turnover in a longitudinal study of hospital staff nurses. The sample data were collected from nurses employed in 105 nursing units over a twelve-month period. The data collection was made through personal interviews. To permit comparison of resigning and remaining nurses, the subjects were followed to see whether each nurse voluntarily resigned her position. Perceived autonomy, job satisfaction, intent to leave the hospital and turnover were found to be successive stages of a nurse's decision to resign.

They found personal characteristics and job-related attributes to be predictive at various stages of the process although family status variables (marital status, number of children) had no significant effect.

The final study to be reviewed in this section used Holland's (1973) theory of congruency, consistency and differentiation as predictors of job satisfaction. Hener and Meir (1981) used these three independent variables to predict job satisfaction within the occupation of nursing rather than between occupations. The application within the occupation would indicate how individuals who made the wrong occupational choice can find a specification which will fit their vocational interests. A Smallest Space Analysis was performed to find the interrelationships among nine clinical areas. The findings supported the congruence hypothesis within the scope of the nursing occupation. Findings on consistency and differentiation were not conclusive.

Correlational Studies on Employee Turnover

Many of the studies mentioned have raised the problem of identifying variables that have predictive values in the retention and turnover of nursing personnel. The studies that follow will describe research where significant correlations have occurred. It is important to note that correlation studies are useful in identifying relationships but do not indicate a causal relationship. For the populations cited, predictive variables may arise but one must be cautious in over-generalizing to the field in general.

A study of the influence of internal opportunity structure and the sex of worker on turnover patterns (Smith, C. B., 1979) examined job vacancies in a state civil service. The sample provided almost 20,000 vacancies during a one-year period. Variables studied included job title and level, sex, age and reason for vacancy, i.e. quitting, promotion, leave of absence, and similar information on new appointees. Job chains with at least three hierarchical levels were used for the analysis, and both men and women were used in the sample. The hypotheses tested were

1. The lower the inside opportunities for an occupation, the more likely it is to be predominately female in composition.
2. The higher the proportion of managerial to non-managerial positions in the occupational chain, the lower the quit rates in the chain (for all but those at the top of the chain).
3. Within any occupational chain, the higher the hierarchical level, the greater the proportion of men and the smaller the apparent opportunities for advancement of women (p.366).

3a. The higher the proportion of male incumbents in an occupation, the lower the "quit" rate.

3b. The higher the proportion of men at upper levels, the higher the quit rate for women compared with that of men.

3c. In any occupation, the higher the opportunity for advancement the lower the sex segregation by hierarchical level, and the lower the quit rates for both men and women.

3d. The greater the opportunity for advancement in an occupational chain, the lower the quit rate of internal organizational movement in the form of transfers or leaves of absence.

4. The higher the level of the job, the more the characteristics of the new appointee resemble those of the previous incumbent.

4a. The higher the level of the job, the lower the influence of turnover on the distribution of men and women in an occupational chain (pp. 365-368).

The data revealed that sex had no relation to quit rate; however, women were more likely to quit in high opportunity chains, and men were more likely to quit in low opportunity chains.

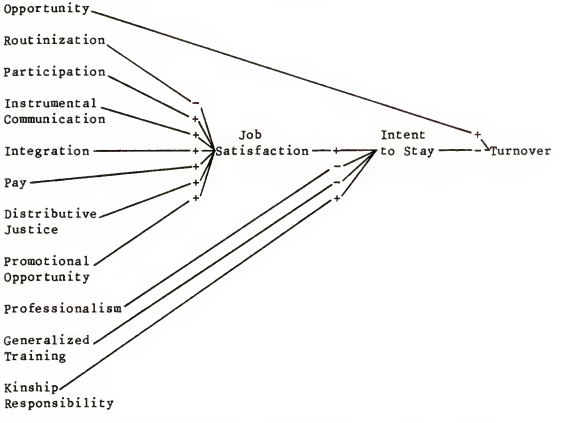
Koch and Rhodes (1981) worked on predictors of turnover of female factory workers. The one-year study considered 153 sewing machine workers in a southwestern garment factory. Instrumentation included Survey of Organizations (Taylor and Bowers, 1972), with scales for peer leadership, supervisory leadership, communication flow, overall satisfaction, and job challenge. Satisfaction with work and pay was measured using the Job Descriptive Index (Smith, Kendall and Hulin, 1967). The authors designed an instrument to collect the demographic data. They attained a response rate of 94%. Findings indicated that organizational, job, and personal characteristics are equally important in explaining turnover. Several variables were significantly ($p<.05$ or less) related to turnover, including tenure, cycle time, peer

leadership, communication flow, training time, family income, and satisfaction with pay.

Longitudinal data on 1,091 registered nurses in seven hospitals were used to estimate a causal model of turnover in organizations (Price and Mueller, 1981). Variables included opportunity, routinization, participation, instrumental communication, integration, pay, distributive justice, promotional opportunity, professionalism, general training, kinship responsibility, job satisfaction and intent to stay. Price and Mueller note that variables such as age, length of service, existence of a union, and vested pensions are excluded from their model, not for a lack of validity, but because they do not contribute to an explanation of why turnover occurs; the authors acknowledge their strong predictive value as supported through the literature. A diagram of Price and Mueller's Causal Model of Turnover is illustrated in Figure 2.

Multiple regression and path analysis were used in testing this model. Using job satisfaction as a dependent variable, this study found seven variables to be statistically significant influences on job satisfaction. Low routinization, high instrumental communication, and high promotional opportunity all contribute to greater job satisfaction.

Opportunity was significant along with amount of time worked and age. The variables integration and distributive justice were expected to be significant and were not. The net effect of the study indicated that the greater the opportunity, the less the job satisfaction; the older the nurse, the greater the job satisfaction; and full-time nurses were less satisfied than part-time nurses.



Note: From "A causal model of turnover for nurses" by James L. Price and Charles W. Mueller, Academy of Management Journal, 1981, 24, 543-65. Reprinted by permission.

FIGURE 2: Price and Mueller's (1981) Causal Model of Turnover.

With intent to stay as the dependent variable, Price and Mueller (1981) found job satisfaction as the strongest influence: the more satisfied nurses are the ones who intended to stay. Nurses with higher level education (baccalaureate, graduate degrees) are more likely to leave, and nurses with greater kinship responsibilities were less likely to express an intention to leave. Nurses with the highest pay were more likely to express an intent to stay, regardless of their level of job satisfaction. Opportunity and promotional opportunity also had a significant influence on intent. In short, Price's model received mixed support. Rank ordering of the variables predictive of turnover is as follows: intent to stay, opportunity, general training, and job satisfaction. Interestingly, opportunity was almost four times as important as pay.

A major study of state retention of medical school graduates (Hough and Marder, 1982), using the computerized database of the American Medical Association through December 31, 1979, was recently completed. A major reason for state supported medical schools has been that the graduates of the programs tend to stay in the state where they complete medical school. This study was designed to examine this assumption and to test its soundness. The entire population of active United States physicians, who graduated from U.S. medical schools, was examined to determine their migratory patterns. The study revealed that the ability of states to retain their medical school graduates is related to the physician characteristics of age, medical school, and specialty, as well as to the state characteristics of population, physician-to-population ratio and per capita income.

The authors felt that reasons for the states to support medical education were less compelling following this study. The question of private versus public medical schools found that graduates of private institutions were less likely to be retained by the state than those graduates of public institutions.

Summary and Conclusions on the Literature Review

To summarize these findings dealing with research on determinant and intervening variables in employee turnover, the literature indicates that turnover and job satisfaction can vary independently of each other. Intervening variables are numerous and can vary turnover by industry and organization, for a variety of reasons. Some general trends revealed by the literature on turnover are

1. Successively higher amounts of pay will probably produce successively lower amounts of turnover.
2. Successively higher amounts of integration will probably produce successively lower amounts of turnover.
3. Successively higher amounts of formal and instrumental communication (related to job performance) will probably produce lower amounts of turnover.
4. Successively higher amounts of centralization (of power) will probably produce successively higher amounts of turnover.

Correlates that seem to be associated with turnover, but for which no causal relationship can be empirically proven, are as follows

1. Persons with short lengths of service usually have higher turnover rates than those with long lengths of service.
2. Younger persons usually have higher rates of turnover than older persons.
3. During periods of high employment, there are usually higher rates of turnover than during periods of high unemployment.
4. Unskilled workers usually have higher rates of turnover than skilled workers.

While the literature on turnover is rich with studies being undertaken in industry and in nursing to examine both the process and variables involved with labor turnover, more research is needed to explore the predictive value of selected variables. The literature clearly indicates that different variables have had significant impact on each profession studied and on individual organizations. While no variables have been conclusively linked to specific characteristics of health care organizations that will assure the retention of nursing personnel, several variables seem to be associated with an organization's ability to predict turnover. The study of these variables has been influential in bringing about change in the job responsibilities of nursing personnel. In many cases, retention studies have helped the organization bring about organizational improvement.

During the first half of this century, the majority of postsecondary nurse training programs were diploma-granting institutions, usually operated adjacent to the hospital, with the hospital providing the clinical experiences. With the coming of the baccalaureate and associate degree programs, the postsecondary programs have been relocated to more conventional college campuses, and the diploma programs have declined. Florida Hospital closed its diploma program in the 1950s.

Although five postsecondary institutions use the hospital for clinical experiences, the recruitment and retention of qualified nursing personnel continues to be a problem. This study of variables having predictive value in the retention of nursing personnel raised some important questions. Which variables are good predictors of Florida Hospital's ability to retain nurses? Has the Kettering Medical Center experience of retention been better because of the operation of a two-year college at the hospital? How are the two groups similar? Does the proximity of the postsecondary nursing education program have an impact on the ability of the organization to meet its staffing needs? Was there a benefit to operating the diploma program on the hospital site that has since been lost with the demise of the program? The literature cited above indicated that certain variables have predictive power in other studies and may make significant contributions to this proposed study. The literature indicates that the key variables having a bearing on this study might be pay, length of service, kinship responsibility, general training, job satisfaction, and intent to stay.

This study attempted to examine the educational history, reasons for turnover, job evaluations, and proximity of postsecondary institution for the subjects.

CHAPTER III

METHODOLOGY

This ex post facto study was designed to determine which selected variables had predictive value in the retention of nursing personnel. A key variable examined was whether hospitals with on-site educational programs were better able to retain personnel. Kettering Medical Center has long defended its operation of a two-year college on the assumption that the operation of this program assisted the organization in developing a commitment in the persons trained on-site. Operation of the two-year college is based on this same assumption to the present. The first graduates joined the work force at Kettering Medical Center in 1972. The time period under study is July 1, 1972 thru June 30, 1982.

During the same time period, Florida Hospital has operated a Licensed Practical Nursing School (LPN), and provided clinical experiences for student nurses from local community colleges, the University of Central Florida, and Southern College of Seventh-Day Adventists. Nurse retention has continued to be a problem. The chief executive officer for Florida Hospital believes that the establishment of a program modeled after the Kettering program could alleviate this problem.

This reseacher was concerned with the comparison of the demographic and organizational variables taken from random samples of the personnel records of 200 registered nurses from each institution. The criterion for selection was that the individuals shall have been employed by the organization, worked for some period of time before leaving the organization, between July 1, 1972, and June 30, 1982. The source of information was individual personnel records from each institution. A copy of the retention data collection form is included in the appendix.

Research Strategy

For the past ten years, Florida Hospital has functioned like many other community hospitals, offering a broad range of medical diagnostic and treatment therapies. It differs from other community hospitals serving large urban areas because it has one of the largest coronary diagnostic and revascularization programs in the Southeast. It served as a control group in this design. Kettering Medical Center offers a comparable range of services, but additionally, has had the independent variable of the college operation on-site during the time period under study.

The review of the literature indicated that employee retention has been influenced by a number of personal, professional and organizational characteristics. The strategy of this study was to develop a demographic profile for nursing groups from both institutions to discover the consistency and reliability of each. Identification of variables having predictive value impacting on retention was the goal.

This was followed by between-group comparisons to discover their variability on selected demographic and organizational variables, and determine the attributes of both nursing groups. The balance of this chapter describes the sample population, method of data collection, and the analysis of data.

The Sample Population

The registered nurse classification is so broad as to include persons who have the diploma, associate or baccalaureate degree. The breadth of this classification allows studies of each subgroup, with sufficient power to obtain samples to have potentially significant findings within each. The sample population included sufficiently large numbers of cases to allow significant findings between these three degree groups. The sample from Kettering Medical Center included a random sample of 200 registered nurses who left the organization between 1972 and 1982. Similarly, the sample from Florida Hospital included 200 registered nurses meeting the same criterion.

Hypotheses

To determine whether an organization with an on-site postsecondary associate nursing degree program had better retention and lower turnover rate among registered nurses than an organization without a similar on-site program, the following null hypotheses were proposed

Hypothesis I

I. There are no differences in the status of each demographic and organizational variable of the two groups contributing samples.

Hypothesis II

II. There is no relationship between certain selected demographic and organizational variables and the retention of nursing personnel.

Hypothesis III

III. There is no relationship between retention of nursing personnel in hospitals and the existence of on-site and off-site postsecondary educational programs.

Hypothesis IV

IV. There are no differences in the status of each demographic and organizational variable of Seventh-Day Adventist and non-Seventh-Day Adventist nurses.

Instrumentation and Data Collection

Data used in this study were collected from the personnel files maintained by Florida Hospital and Kettering Medical Center. A copy of the form used to collect the data is included in the appendix. The investigator in this study was unable to draw upon pre-existing instruments with which to collect the data. An eclectic approach led to the development of a form which included employee identification numbers, case record number, site of collection, gender, secondary school(s) and location(s), postsecondary school(s) and location(s),

degree attained, distances between institutions, commuting distance, length of service, job and reason for termination.

The researcher traveled to Kettering Medical Center and was granted access to the personnel files by the department director. A listing of all former employees holding registered nurse credentials was researched from records in storage. Each name appearing on the list was assigned a number used to cross reference each case and for selection purposes. The sample population contained 685 cases, from which a random sample of 200 cases was drawn, using a random number table. Similarly, a listing of all terminated employees was searched by job classification to locate the population of registered nurses who had quit during the time period studied. All classifications requiring registered nurse credentials were examined. The population at Florida Hospital contained 1,157 cases from which a random sample of 200 cases was drawn, using a random number table.

Once the sample was identified, demographic variables were collected for each case, indicating the status at employment and turnover. They include date, age, marital status, number of dependents (excluding spouse), wage, church membership, and educational level.

Analysis of Data

The following demographic variables were studied: age, employment period, job, church membership, number of dependents, wage and marital status. Within group comparisons based on location (Kettering versus Orlando) were made by comparing the status of these variables at the point of employment and turnover.

The following organizational variables were studied: distances between secondary, postsecondary and the employing organization; educational level, length of service, and reason for termination. Since so many variables were considered in the first hypothesis, the criterion for acceptance was based on a majority of the variables having significant differences between the Kettering and Florida nurses. A secondary goal of the study was to develop demographic profiles of the nurses at each location.

Data were analyzed to obtain the simple frequencies of each variable considered, with descriptive statistics calculated for all ordinal data. Chi square analysis was used to examine differences between the nominally coded variables of length of service, job held, church membership, number of dependents, marital status, distances between secondary, postsecondary, and the employing organization; educational level, and reason for termination. Nominal coding of distances was accomplished by coding the distances by proximity using progressively wider area definition. The actual codes included examining whether the individual had stayed within the same campus, city, county, state, country, continent, with the last classification being inter-continental. This same coding scheme was used with each variable quantified in terms of distance except commuting distances at entry and termination.

Ordinal data comparisons were completed using the t-test statistic and included the variables of age, number of dependents, wages at entry and termination, distances between secondary, postsecondary and the employing organization;

commuting distances at entry and termination; and length of service.

The literature suggests that reliance on one factor or some combination of factors could be misleading, and that other variables influence retention of nursing personnel. Mulitiple linear regression techniques were used to determine the extent of relationship between variables and to determine the extent to which other variables influence retention. Length of service was the dependent variable with all other variables treated as independent variables. The level of statistical significance designated by the investigator as sufficient to identify predictive variables was .05.

An important aspect of this study was length of employment. The unit of measurement was weeks. The literature suggests that length of service is one indicator of commitment to the organization. A histogram of the data was compared with that used by Rice et al.(1950) to formulate their theory of the turnover process.

CHAPTER IV

PRESENTATION OF FINDINGS

The study of employees quitting their jobs with an employing organization is one approach to studying employee turnover. The work of Rice et al. (1950) was concerned with the rate at which employees quit their work at Glacier Metal Company. The subsequent work by Price (1981) suggests that employee satisfaction is transient when they are faced with an opportunity. Employee sentiment about job satisfaction and intentions to continue employment may be very positive until the same employee is made aware of a new opportunity, when all of their loyalty to the current job vanishes. This study sought to be free from the burden of having to study the variables of job satisfaction and good intentions when such data may not have much bearing on other determining variables of job turnover. For example, a nurse may be very satisfied with her job, pay, working conditions, etc., but if her husband is transferred, it is unlikely that the job or organization would be able to retain her. All of the indicators would have led one to believe that her employment in the organization would continue into the future indefinitely.

The problem at Florida Hospital was to determine which variables had predictive value for solving the problem of high turnover in their professional staff. An important part of this problem was to determine

what influence the location of postsecondary educational institutions on the campus of the hospital might have. The first step was to compare demographic variables of two sample populations from similar hospitals, one having a two-year college program on the contiguous property, and one without such a program.

This chapter is organized around the four study hypotheses and presents results of the study findings. The data are presented in statistical format under each hypothesis. Conclusions are discussed in Chapter V.

Hypothesis I: **There are no differences in the status of each demographic and organizational variable of the two groups contributing samples.**

Comparison of Demographic Characteristics

Gender Distribution

In a study of this nature, one would expect the clear majority of the profession to be female. Although the dominant gender for both groups was female, comparison by gender (Table 1) indicated no significant difference between the groups.

Age Distribution

Ages in the Kettering group ranged from a minimum of 19 to a maximum of 54, with a mean age of 27.6, mode of 21 and median of 26. The Florida group ranged from a minimum of 18 to a maximum of 57, with a mean age of 28.08, mode of 23 and median of 26 years of age.

Table 1

Comparison of Gender Distribution
Between Sample Groups

	Group 1[a] N	%	Group 2[b] N	%	Combined Total N	%
Female	188	94.5	187	94.0	375	94.2
Male	11	5.5	12	6.0	23	5.8
TOTALS	199	100.0	199	100.0	398	100.0

t = 0.214, 396 df Significance: p = .413

[a]Group 1 = Kettering Medical Center sample

[b]Group 2 = Florida Hospital sample

Comparison of the means for the two groups (Table 2) revealed no significant difference between the entry ages of both groups.

Table 2

Comparison of Entry Ages
Between Sample Groups

	N	Mean	Median	Mode	S.D.
Group 1 (Kettering)	195	27.60	26	21	7.407
Group 2 (Florida)	191	28.08	26	23	7.921

t = 0.618, 384 df Significance: p>.54

Similar analysis of the termination ages revealed the mean age for termination of the Kettering group was 29.05, with a minimum of 20, maximum of 56, a median of 27, and mode of 23. The Florida group had a mean termination age of 29.49, with a minimum of 19, maximum of 60, median of 27, and mode of 23. Comparison of the two groups (Table 3) revealed no significant differences between the groups with respect to their mean termination ages.

Table 3

Comparison of Termination Ages
Between Sample Groups

	N	Mean	Median	Mode	S.D.
Group 1 (Kettering)	195	29.05	27	23	7.437
Group 2 (Florida)	191	29.49	27	23	7.871

$t = 0.578$, 384 df Significance: $p > .571$

Marital Status

The researcher attempted to code marital status both at the time of entry and at termination with the employing organization. Recent laws dealing with human rights have made it impractical to collect this information prior to hiring a person. Older records collected this information routinely, and in more recent records, the data were collected after the person was employed. In most cases the marital status at termination was not available unless it coincidently was given

as a related reason for termination. Examples include such conditions as a nurse quitting her job to get married and/or relocate with her new spouse, or, in one case, where a nurse was released because of her inability to perform effectively in her job while going through the divorce experience. Comparison of the entry marital status (Table 4) revealed no significant differences between the two groups.

Table 4

Comparison of Entry Marital Status
Between Sample Groups

	Group 1[a]		Group 2[b]		Combined Total	
	N	%	N	%	N	%
Single	77	39.5	65	34.8	142	37.2
Married	106	54.4	101	54.0	207	54.2
Separated	1	0.5	2	1.1	3	0.8
Divorced	10	5.1	19	10.2	29	7.6
Widowed	1	0.5	0	0.0	1	0.2
TOTALS	195	100.0	187	100.0	382	100.0

Chi square = 5.096, 4 df Significance: p=.278

[a]Group 1 = Kettering Medical Center sample

[b]Group 2 = Florida Hospital sample

When termination marital status was compared, the lack of information, particularly in Group 2, regarding this variable revealed no significant differences between the two groups (Table 5).

Table 5

Comparison of Termination Marital Status
Between Sample Groups

	Group 1[a] N	Group 1[a] %	Group 2[b] N	Group 2[b] %	Combined Total N	Combined Total %
Single	57	31.1	2	7.7	59	28.2
Married	116	63.4	21	80.8	137	65.6
Separated	1	0.5	0	0.0	1	0.5
Divorced	8	4.4	3	11.5	11	5.3
Widowed	1	0.5	0	0.0	1	0.5
TOTALS	183	100.0	26	100.0	209	100.0

Chi square = 7.99, 4 df Significance: $p>.09$

[a]Group 1 = Kettering Medical Center sample

[b]Group 2 = Florida Hospital sample

Dependents

The number of dependents at both entry and termination were coded if the information was available, to determine what influence the variable might have on employee turnover. Comparison of the number of dependents at entry revealed nonsignificant differences between the two groups (Table 6). Data gathering for this variable was hampered by the same problem mentioned above. The number of dependents can be ascertained once an employee is hired, but any changes in the number of dependents at termination is difficult unless mentioned in reference to the reason(s) for quitting.

For example, an employee may leave for family reasons influenced by the increase in the number of dependents.

Table 6

Comparison of Entry Number of Dependents
Between Sample Groups

	Group 1[a]		Group 2[b]		Combined Total	
	N	%	N	%	N	%
None	114	65.9	87	59.6	201	63.0
One	23	13.3	19	13.0	42	13.2
Two	19	11.0	25	17.1	44	13.8
Three	12	6.9	12	8.2	24	7.5
Four	2	1.2	1	0.7	36	0.9
Five	2	1.2	2	1.4	4	1.3
Six	0	0.0	0	0.0	0	0.0
Seven	1	0.6	0	0.0	1	0.3
TOTALS	173	100.0	146	100.0	319	100.0

Chi square = .567, 4 df Significance: $p>.25$

[a]Group 1 = Kettering Medical Center sample

[b]Group 2 = Florida Hospital sample

Comparison of the number of dependents at termination was difficult to ascertain because it was generally thought not to be significantly influential in whether or not an employee leaves an organization. Comparison of the number of dependents at termination (Table 7) was nonsignificant.

Table 7

Comparison of Termination Number of Dependents
Between Sample Groups

	Group 1[a] N	%	Group 2[b] N	%	Combined Total N	%
None	106	61.6	9	64.3	115	61.8
One	29	16.9	2	14.3	31	16.7
Two	20	11.6	2	14.3	22	11.8
Three	12	7.0	1	7.1	13	7.0
Four	2	1.2	0	0.0	2	1.1
Five	2	1.2	0	0.0	2	1.1
Six	0	0.0	0	0.0	0	0.0
Seven	1	0.6	0	0.0	1	0.5
TOTALS	172	100.0	14	100.0	319	100.0

Chi square = .55, 6 df Significance: p>.99

[a]Group 1 = Kettering Medical Center sample

[b]Group 2 = Florida Hospital sample

While the number of dependents did not generally influence nurse turnover, anticipation of birth of a new dependent (maternity) was reported as a reason for turnover by many of the married nurses.

This question is discussed later in this chapter with other reasons reported for turnover.

Wages

In researching wages paid to nurses during the time period under study, some ambiguity was generated because both institutions employed nursing students as aides, and then promoted them as they completed degrees. In a few cases, the transition was difficult to determine from the personnel records. For the purposes of this study, the length of service was based on their first date of employment as a registered nurse, even though the nurse may have worked for the same employer in a lesser position. It should also be noted that the time period under study (July 1, 1972 through June 30, 1982) represents a period in which the rate of inflation was one of the highest in the history of the United States.

Both entry wages and termination wages were studied to determine what influence they might have in relation to turnover. Entry wages in the Kettering sample ranged from $2.00 per hour to $13.41 per hour, with a mean of $5.902. The Florida sample ranged from $1.00 to $8.55 with a mean of $5.399. Comparison of the two groups (Table 8) revealed no difference.

Termination wages for the Kettering sample ranged from $2.42 to $15.36, with a mean of $7.116. Termination wages for the Florida sample ranged from $4.25 to $9.45, with a mean of $7.485. Use of the t-test to compare entry wages from termination wages revealed nonsignificant differences (Table 9).

Table 8

Comparison of Entry Wages
Between Sample Groups

	N	Mean	Minimum	Maximum	S.D.
Group 1 (Kettering)	198	5.90	2.00	13.41	2.167
Group 2 (Florida)	160	5.39	1.00	8.55	1.326

t = 1.053, 254 df Significance: p>.294

Analysis of variance between the entry and termination wage means is discussed later in the chapter in the section on reliability of the data. The difference in wages between the groups can be readily explained by regional differences that have existed for some time.

Table 9

Comparison of Termination Wages
Between Sample Groups

	N	Mean	Minimum	Maximum	S.D.
Group 1 (Kettering)	197	7.12	2.42	16.13	2.167
Group 2 (Florida)	59	7.44	4.25	9.45	1.018

t = 0.054, 254 df Significance: p>.596

Church Membership

Since both institutions contributing samples are owned and operated by the Seventh-Day Adventist Church, the variable of church membership was coded where it could be determined. In most cases, the question of religious preference was routinely coded on the application form for both organizations. More recent application forms did not raise the question, leaving the information unavailable. Because of the length of the period under study, the researcher was able to collect the information on most of the sample. Religious preference was simply coded as Seventh-Day Adventist or other. The collection of this variable made it possible to analyze patterns in the Adventist population that might vary from the general population. The findings of this analysis are discussed in the section on hypothesis IV.

Tracking the change in religious beliefs between the point of entry into the employment and termination was impossible since the data had not been collected at termination. To assume no change in religious preference is as equally dangerous as the opposite assumption. Findings regarding the religious preference were inconclusive due to a lack of data. The results of entry religious preference (Table 10) showed the Kettering group comprised of 31.7 percent Seventh-Day Adventist, and 68.3 percent other. The Florida sample consisted of 32.2 percent Seventh-Day Adventist, with 67.8 percent having other preferences.

Table 10

Comparison of Entry Religious Preference
Between Sample Groups

	Group 1[a] N	%	Group 2[b] N	%	Combined Total N	%
Seventh-Day Adventist	51	31.7	55	32.2	106	32.0
Other Preference	110	68.3	116	67.8	226	68.0
TOTALS	161	100.0	171	100.0	332	100.0

Chi square = 0.00, 1 df Significance: p=1.0

[a]Group 1 = Kettering Medical Center sample

[b]Group 2 = Florida Hospital sample

Educational Level

The question of which educational degree level should be required of all registered nurses is a question that remains to be resolved within the nursing profession. Entry and termination level of education was collected for several reasons. The first was to test the null hypothesis and, in so doing, determine the existing mix of degrees that currently provide the pathway to becoming a registered nurse. Other questions centered around movement within the profession and what impact it might have. Data regarding the entry educational level were readily available, but again, such information is rarely part of information collected at termination of employees. Comparisons of the educational

levels (Table 11) showed significant differences between the numbers of nurses with the various degrees. With an associate degree program on the same campus, one might expect a larger portion of nurses with that degree.

Table 11

Comparison of Entry Educational Degree Levels
Between Sample Groups

	Group 1[a]		Group 2[b]		Combined Total	
	N	%	N	%	N	%
Associate	93	46.7	58	33.7	151	40.7
Diploma	55	27.6	54	31.4	109	29.4
Bachelor's	48	24.1	48	27.9	96	25.9
Other	3	1.5	12	7.0	15	4.0
TOTALS	199	100.0	172	100.0	371	100.0

Chi square = 11.61, 3 df Significance: $p<.001$

[a]Group 1 = Kettering Medical Center sample

[b]Group 2 = Florida Hospital sample

The termination educational level (Table 12) shows essentially the same distribution and a significant difference between the two groups with some shifting from lower degree levels to higher levels. Notably, in the Kettering sample, two nurses with baccalaureate degrees went on to advanced degrees during their employment, while two diploma nurses in the Florida sample went from diploma to baccalaureate degrees.

Analysis of variance between the entry and termination educational levels revealed a nonsignificant shift.

Table 12

Comparison of Termination Educational Degree Levels Between Sample Groups

	Group 1[a] N	%	Group 2[b] N	%	Combined Total N	%
Associate	93	47.0	58	33.7	151	40.8
Diploma	54	27.3	52	30.2	106	28.6
Bachelor's	46	23.2	50	29.1	96	25.9
Other	5	2.5	12	7.0	17	4.6
TOTALS	198	100.0	172	100.0	370	100.0

Chi square = 9.41, 3 df Significance: $p<.05$

[a]Group 1 = Kettering Medical Center sample

[b]Group 2 = Florida Hospital sample

Commuting Distance

The time period studied saw an Arab Oil embargo and dramatically rising fuel costs influence car size and the related costs of operating such vehicles. Cities and suburbs have grown increasingly congested, suggesting that traveling long distances between one's home and employer might influence a change in jobs. Commuting distance was coded at both entry and termination to determine whether this variable influenced the individual's length of service.

Table 13

Comparison of Entry Commuting Distance
Between Sample Groups

	N	Mean	Minimum	Maximum	S.D.
Group 1 (Kettering)	169	5.86	0.0	44.0	6.281
Group 2 (Florida)	148	10.47	0.0	35.0	7.404

$t = 5.974$, 315 df Significance: $p<.001$

Comparison of the two groups showed the Florida sample to be significantly ($t = 5.974$, $p<.001$) more mobile as suggested by the data, traveling an average of 10.47 miles to work (one way). Nurses in the Kettering sample travel an average of 5.86 miles to work.

Comparison of entry commuting distance with termination commuting distance revealed little difference (Table 14) between each measurement point for the respective groups. For example, the mean entry commuting distance for the Kettering sample was 5.86 miles, while the mean termination commuting distance was slightly shorter at 5.70 miles. Similarly, the mean entry distance for the Florida sample was 10.47 miles as contrasted with 10.36 as the mean termination commuting distance. Differences in the average commuting distance between the two groups are better understood since the Kettering physical plant is located in an area generally considered to be one of the nicer suburbs of Dayton, Ohio. The Florida physical plant is in a more urban setting, in an area with less appealing residential features for the professional employee.

Table 14

Comparison of Termination Commuting Distances
Between Sample Groups

	N	Mean	Minimum	Maximum	S.D.
Group 1 (Kettering)	167	5.70	0.0	44.00	6.170
Group 2 (Florida)	148	10.36	0.0	35.00	7.243

$t = 6.149$, 313 df Significance: $p < .001$

Jobs Held

This study was based on studying registered nurses because of the variety of postsecondary degree programs from which they graduate, become licensed, and enter the profession. Their professional role is central to the operation of the health care industry. Typically, the employing organization invests heavily in their orientation and in many cases, additional training for specialized functions. Both samples were drawn randomly from the personnel lists on the sole basis of being registered nurses. The jobs were coded to determine what influence they might have on turnover.

Selection of the Kettering sample was based on actual personnel files for the time period studied. Complete personnel records for the sample were still in existence. Such was not the case with the Florida sample. Space constraints have forced the personnel department at Florida Hospital to purge files periodically, placing minimal information on microfilm. The source for sample selection included

computer records going back several years, and termination listings generated for each pay period, which included the remaining time period back to July of 1972. Sample identification was based on searching by job classifications for which licensure as a registered nurse was requisite. The outcome resulted in more job classifications being coded for the Kettering sample than the Florida sample. Comparison (Table 15) of the coded jobs revealed some differences that resulted from sample selection, however, the clear majority of jobs held in both samples was that of staff nurse.

Table 15

Comparison of Jobs Held
Between Sample Groups

	Group 1[a]		Group 2[b]		Combined Total	
	N	%	N	%	N	%
Staff Nurse	171	87.2	140	99.3	311	92.3
Asst. Head Nurse	20	10.2	1	0.7	21	6.2
Head Nurse	0	0.0	0	0.0	0	0.0
Clinical Instructor	2	1.0	0	0.0	2	0.6
Employee Health	1	0.5	0	0.0	1	0.3
Special Care	2	0.5	0	0.0	2	0.6
TOTALS	196	100.0	141	100.0	337	100.0

Chi square = 16.75, 4 df Significance: $p<.05$

[a]Group 1 = Kettering Medical Center sample

[b]Group 2 = Florida Hospital sample

Comparison of Organizational Variables

Comparison of organizational variables included the distance between the secondary school and the postsecondary institution, and the postsecondary institution and the first employer. Distances between these organizations suggest the degree of mobility in the population under study.

Distance Between Secondary and Postsecondary Institutions.

Distances between the last secondary institution listed in the individual's personnel record and the first postsecondary institution was measured from the addresses listed using the largest scaled map available showing both locations. The same information was coded using nominal code that show the relative proximity. The nominal codes used were same: campus, city, county, state, country, continent, and inter-continental. This afforded the researcher two approaches for examining the data.

In the Kettering sample, the distances between secondary school and postsecondary institution ranged from a minimum of 0 miles (same campus) to a maximum of 8,335 miles. The mean distance between the two institutions was 258 miles. In the Florida sample, the distances between secondary and postsecondary institutions ranged from a minimum of 0 miles (same campus) to a maximum of 10,666 miles, with a mean distance of 568 miles. Comparison of the two groups (Table 16) revealed a significant difference ($t=2.264$, $p<.05$) between the groups.

Table 16

Comparison of Secondary to Postsecondary Distances Between Sample Groups

	N	Mean	Minimum	Maximum	S.D.
Group 1 (Kettering)	191	258.05	0.0	8335	825
Group 2 (Florida)	87	568.01	0.0	10666	1434

$t = 2.264$, 276 df Significance: $p<.05$

The data suggest that the Florida sample is significantly more mobile in the transition from secondary school to postsecondary institution than the Kettering population. The count of 87 in the Florida sample reflect a problem presented in collecting the data. The application form in use at Florida for the first six years studied did not request any information regarding the secondary school attended. That information did not exist in the microfilm records for the largest portion of the study.

Nominal coding of the same data (Table 17) using the classifications mentioned above revealed no difference in the distribution. The data reflects the mobility of the Florida sample as mentioned, with larger portions of the Florida sample going out of state for their postsecondary education.

Table 17

Comparison of Secondary to Postsecondary Distances Between Sample Groups (Nominal Coding)

	Group 1[a] N	%	Group 2[b] N	%	Combined Total N	%
Campus	2	1.1	0	0.0	2	0.7
City	43	22.9	17	18.9	60	21.6
County	1	0.5	0	0.0	1	0.4
State	82	43.6	38	42.2	120	43.2
Country	55	29.3	32	35.6	87	31.3
Continent	2	1.1	1	1.1	3	1.1
Inter-Cont.	3	1.6	2	2.2	5	1.8
TOTALS	188	100.0	90	100.0	278	100.0

Chi square = 2.81, 6 df Significance: $p>.83$

[a]Group 1 = Kettering Medical Center sample

[b]Group 2 = Florida Hospital sample

Distance Between Postsecondary Institution and First Employer

Distance between the postsecondary training institution and the first employer ranged from a minimum of 0 miles (same organization) to a maximum of 7,350 miles, with a mean of 310 miles in the Kettering sample. In the Florida sample the distance ranged from 0 miles minimum to a maximum of 5,000 miles, with a mean of 320 miles.

It should be noted that the mode in each case was 0, indicating that approximately half of both samples took their first employment at the same site of their postsecondary training. Comparison of the two groups (Table 18) revealed no difference in the distances between their postsecondary training institution and the location of their first job.

Table 18

Comparison of Postsecondary Institution and First Job Distances Between Sample Groups

	N	Mean	Minimum	Maximum	S.D.
Group 1 (Kettering)	195	310.17	0.0	2450	770
Group 2 (Florida)	140	320.57	0.0	5000	630

$t = 0.124$, 333 df Significance: $p > .44$

In addition to measurement of airline distances, the data was coded using nominal grouping similar to that mentioned in the previous section. The codes used were the same: campus, city, county, state, country, continent, and inter-continental. Comparison of the data (Table 19) approaches the level of significance between the pattern set by the Kettering sample and that of the Florida sample.

It should be noted that of the Kettering sample, 50.5 percent of newly graduated nurses were employed by the related/affilliated training institution. In the Florida sample, 47.1 percent of graduated nurses were employed by the related/affilliated training institution.

Table 19

Comparison of Postsecondary Institution and First Job Distances Between Sample Groups (Nominal Coding)

	Group 1[a]		Group 2[b]		Combined Total	
	N	%	N	%	N	%
Campus	99	50.5	66	47.1	165	49.1
City	5	2.6	2	1.4	7	2.1
County	0	0.0	0	0.0	0	0.0
State	31	15.8	25	17.9	56	16.7
Country	57	29.1	46	32.9	103	30.7
Continent	2	1.0	0	0.0	2	0.6
Inter-Cont.	2	1.0	1	0.7	3	0.9
TOTALS	196	100.0	140	100.0	336	100.0

Chi square = 2.78, 5 df Significance: $p>.73$

[a]Group 1 = Kettering Medical Center sample

[b]Group 2 = Florida Hospital sample

Since Florida did not opperate a postsecondary training program leading to the registered nurse qualifications, the data contained in Table 19 reveals that a large portion of the nurses sampled took their first job with an employer affilliated with their training program. It such cases, Florida Hospital was not their first employer.

The frequency distribution for mileage between postsecondary institution and the first employer showed two distinct clusters; one at 0 miles (same campus) and a second smaller grouping of 15 cases at 525 miles. This mileage matches the distance between Florida Hospital and Southern College of Seventh-Day Adventists. Were these cases added to those for the same campus, it would bring the total same campus cases to 82 cases, 58.6 percent of the total sample (N=140).

Reasons for Termination

The list of codes was generated as the data was collected so that all reasons stated in the personnel files would be analyzed. The final list consisted of ten reasons including no reason, return to school, marriage, moved because of husband's job, maternity, another job, illness, personal, relocate and discharged. Theorists recognize that a person leaving a job may use reasons for termination rather than the true reasons. In many cases the researcher found personal notes and letters of termination which doubtless revealed the true reason for termination. From the information given in each personnel folder, it was impossible to discover any motivation for termination other than the reason stated. Comparison of both samples (Table 20) revealed significant (Chi square = 19.75, $p < .05$) differences between the two populations in the reasons given for termination.

Table 20

Comparison of Reasons Given for Termination
Between Sample Groups

	Group 1[a]		Group 2[b]		Combined Total	
	N	%	N	%	N	%
No Reason	29	14.8	21	10.6	50	12.7
Return to School	12	6.1	15	7.5	27	6.8
Marriage	3	1.5	11	5.5	14	3.5
Moved-Husb. Job	12	6.1	15	7.5	27	6.8
Maternity	14	7.1	9	4.5	23	5.8
Another Job	34	17.3	41	20.6	75	19.0
Illness	4	2.0	0	0.0	4	1.0
Personal	20	10.2	34	17.1	54	13.7
Relocate	65	33.2	47	23.6	112	28.4
Discharged	3	1.5	6	3.0	9	2.3
TOTALS	196	100.0	199	100.0	395	100.0

Chi square = 19.75, 9 df Significance: $p<.05$

[a]Group 1 = Kettering Medical Center sample

[b]Group 2 = Florida Hospital sample

Hypothesis II: **There is no relationship between certain selected demographic and organizational variables and the retention of nursing personnel.**

Identification of Variables with Predictive Value

Once the descriptive analysis of all the variables was completed, the next task was to determine if any variables collected had predictive value in projecting the probable length of service for a prospective employee. Determination of variables with predictive value would enable the personnel department for each organization to direct its recruitment efforts toward employees that are more likely to be retained.

Multiple regression analysis was employed to study the linear relationship between the dependent variable, length of service, with all of the other independent variables. The goal was to produce a linear combination of independent variables which would correlate as highly as possible with the dependent variable. The general form of the regression is:

$$Y' = A + B_1 X_1 + B_2 X_2 + \ldots + B_k X_k$$

where Y' represents the estimated value for the effect, A is the Y-intercept. The A and B_1 coefficients are selected in such a way that the sum of the squared residuals are minimized.

The strategy was to identify variables with predictive value, and delete independent variables that did not add substantially to the prediction equation. Since length of service represents the goal of reduced turnover, it was chosen as the dependent variable.

All other variables were treated as independent variables. A secondary goal of this analysis was to verify the reliability of the data being analyzed. For example, several of the variables were coded from the same basic information. The degree at graduation from the postsecondary school should correlate quite highly with the educational level at entry into the employing orgainzation, unless additional education had occurred in the intervening time. If the sample was reliable, correlation of the two variables should be quite strong. The correlation coefficient between these two variables was $r = .995$. This strong correlation was expected as an indicator of the reliability of the sample data. Other reliability correlations were expected between the paired variables of entry and termination age ($r = .980$), marital status ($r = .552$), educational level ($r = .973$), commuting distance ($r = .970$), religion ($r = .721$), and wage per hour ($r = .657$).

The lack of existing information for certain cases in both samples made the calculation of a regression equation more difficult. Multiple regression of all variables seemed to yield significant results with a significant ($r = .914$, $p < .001$) coefficient of multiple correlation.

The final test of the relationships that seemed to be emerging from the analysis was to run stepwise regression to see which variables could be clearly identified as having predictive value in estimating the length of service for a prospective employee. With all of the variables being tested, the exclusion of incomplete cases resulted in significant findings ($r^2 = .994$); however, only sixteen complete cases were selected for inclusion into the regression calculations.

With length of service as the dependent variable, the variables identified as independent variables were distance between secondary school and college, nominal codes for the same variable, number of postsecondary schools attended, nominal codes for distance between postsecondary school and first employer, entry number of dependents, entry wage, entry educational level, entry commuting distance, termination wage, termination religion, termination commuting distance, job held and reason for termination. Termination religion and number of secondary schools were eliminated since the data in both cases was questionnable at best. The stepwise regression was performed on the remaining eleven variables. The results were (r^2 = .90) again significant, with the number of complete cases totalling 98. The number of complete cases was too small a proportion of the total sample for strong predictive value.

Key variables that seemed to be more directly related to turnover were selected and subjected to stepwise regression analysis. The variables selected were termination age, job held, reason for termination, and termination commuting distance. The dependent variable was length of service, with two hundred sixty-five complete cases selected. The results were nonsignificant (r^2 = .053), showing that relationships between variables suggested by earlier findings disappeared when the sample size was increased. None of the variables studied had any predictive value in estimating the length of service in selecting employees.

Hypothesis III: **There is no relationship between retention of nursing personnel in hospitals and the existence of on-site and off-site postsecondary educational programs.**

Length of Service

Of all of the variables studied, none carry more importance in the study of turnover than that of length of service. This variable represents the goal of most managers, especially if they are beset with high turnover, or turnover rates above that of their competitors. The assumption made is that the increased costs of employing more employees will cause the firm greater overhead, thereby reducing the operating margin. The associated costs of high turnover is generally associated with morale problems, although they could just as well be symptomatic of other conditions.

In this study, the length of service was calculated from the date of entry into the employing organization until the date of termination. The number of days was then divided by seven to determine the length of service in weeks. The methodology was followed so that it could be compared directly with the distribution referenced earlier by Rice, Hill and Trist (1950). Their work divided length of service into periods of 25 weeks (approximately 6 months).

In the Kettering sample, length of service ranged from a minimum of 0 weeks (less than a full week of employment) to a maximum of 408 weeks (almost eight years) with a mean length of service of 81.2 weeks (1 year, 6 months). In the Florida sample, length of service ranged from a minimum of 0 weeks (less that a full week) to a maximum of 439 weeks (almost eight and a half years) with a mean length of service of 70.5 weeks. Comparison of the sample (Table 21) revealed no differences between the lengths of service for the samples studied. It should be noted that the difference of the means for the two groups suggests that Kettering nurses typically have a length of service approximately eleven weeks longer than nurses at Florida Hospital.

Table 21

Comparison of Length of Service (in Weeks)
Between Sample Groups

	N	Mean	Minimum	Maximum	S.D.
Group 1 (Kettering)	197	81.20	0.0	408	79.77
Group 2 (Florida)	199	70.47	0.0	439	66.69

$t = 1.448$, 394 df Significance: $p>.14$

Following comparison of the descriptive statistics, the researcher grouped the data into the periods of twenty five weeks in order to determine whether differences had occurred in the current sample and how the data compared with the early work done by Rice et al. (1950). Comparison of the resulting distributions (Table 22) showed no differences between the sampled populations.

When these same data are graphed, the resulting curve generally resembles that produced in Rice et al. (1950) and redrawn in Figure 1. The Kettering data (Figure 3) shows a higher turnover rate in the second period than in the first. The rate declines except for small rises at the sixth and ninth periods. According to the definitions cited by Rice et al. (1950), the differential transit period ends at the tenth period for the Kettering sample. This period would be characterized by a slight increase in the turnover rate as individuals realize their future role in with the organization.

Graphic representation of the length of service for the Florida sample (Figure 4) shows a curve more nearly resembling that of Rice et al. (1950). In the Florida group, the differential transit period typically ends at the ninth period. When both data sets are graphed together (Figure 5), the resultant curves are remarkably similar, with the exception of the difference noted above.

Comparison of all three data sets graphically (Figure 6) shows remarkably similar patterns of employee turnover, considering the differences in educational levels, nature of work, and intervening time.

Table 22

Comparison of Length of Service (in Periods of 25 Weeks) Between Sample Groups

	Group 1[a]		Group 2[b]		Combined Total	
	N	%	N	%	N	%
0 - 25	45	22.6	58	29.0	103	25.8
26 - 51	47	23.6	38	19.0	85	21.3
52 - 77	33	16.6	35	17.5	68	17.0
78 - 103	25	12.6	25	12.5	50	12.5
104 - 129	14	7.0	13	6.5	27	6.7
130 - 155	8	4.0	14	7.0	22	5.5
156 - 181	8	4.0	6	3.0	14	3.5
182 - 207	2	1.0	0	0.0	2	0.5
208 - 233	3	1.5	5	2.5	8	2.0
234 - 259	4	2.0	2	1.0	6	1.5
260 - 285	2	1.0	1	0.5	3	0.8
286 - 311	3	1.5	2	1.0	5	1.2
312 - 337	2	1.0	0	0.0	2	0.5
338 - 363	0	0.0	1	0.5	1	0.2
> 364	3	1.5	1	0.7	4	1.0
TOTALS	199	100.0	200	100.0	399	100.0

Chi square = 12.302, 14 df Significance: p>.05

[a]Group 1 = Kettering Medical sample

[b]Group 1 = Florida Hospital sample

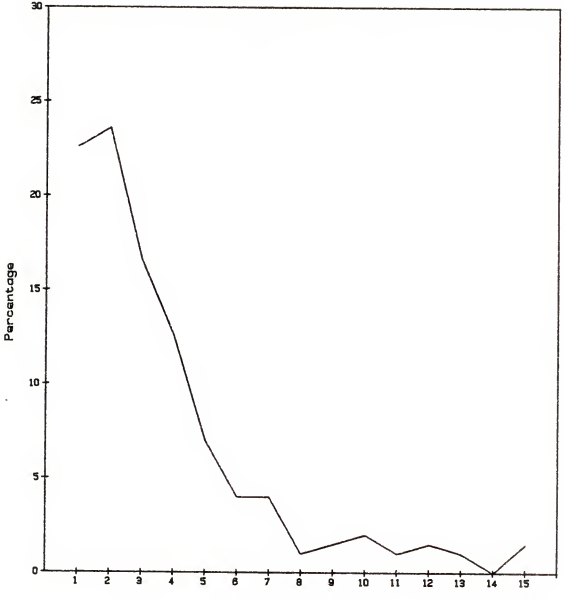


Figure 3: Kettering Medical Center turnover of registered nurses 1972 - 1982. In periods of twenty-five weeks.

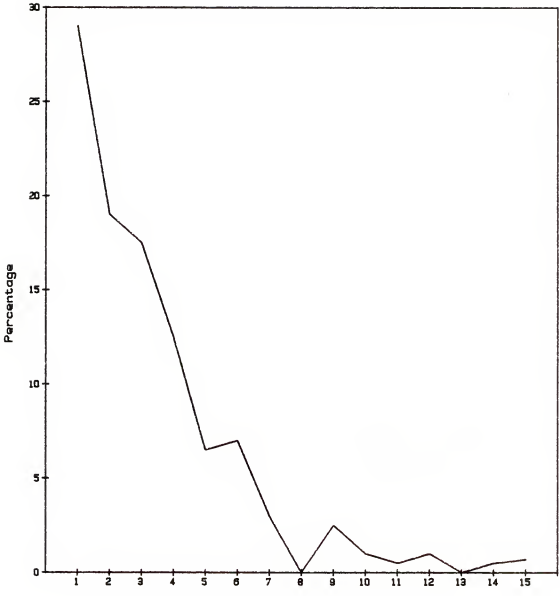


Figure 4: Florida Hospital turnover of registered nurses 1972 - 1982. In periods of twenty-five weeks.

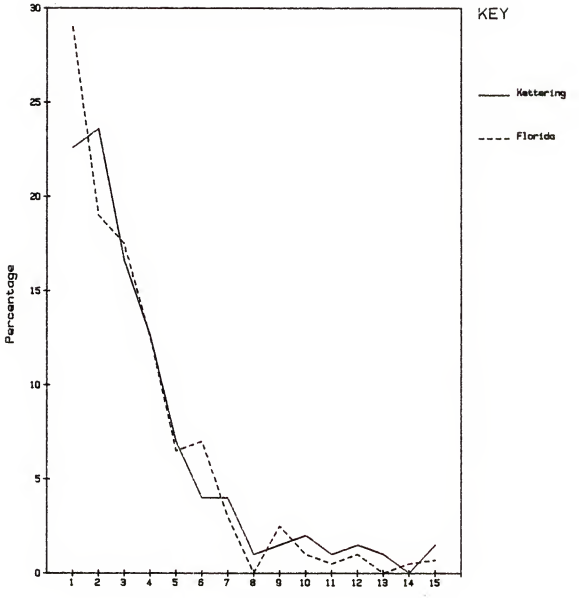
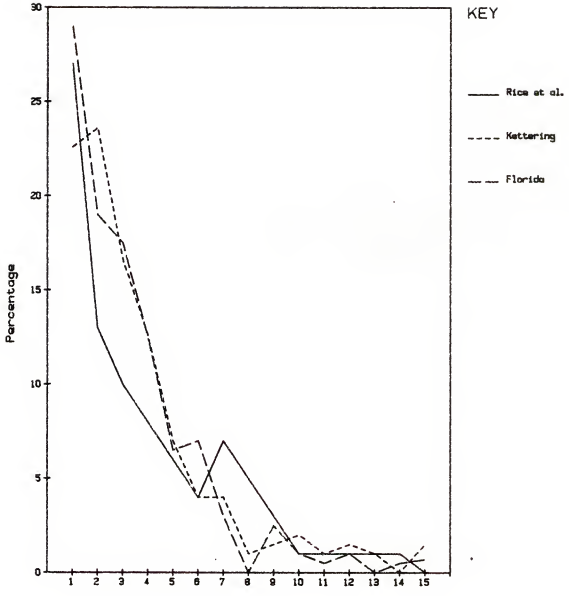


Figure 5: Comparison of Kettering Medical Center and Florida Hospital turnover of registered nurses 1972 - 1982. In periods of twenty-five weeks.



Note: Glacier Metal Company redrawn from data included in "The representation of labor turnover as a social process." by A. K. Rice, J. M. M. Hill, and E. L. Trist, Human Relations, 1950, 3, 357. Reprinted by permission.

Figure 6: Comparison of Kettering Medical Center, Florida Hospital, and Glacier Metal Company turnover (Rice, Hill and Trist, 1950). In periods of twenty-five weeks.

Hypothesis IV: **There are no differences in the status of each demographic and organizational variable of Seventh-Day Adventist and non-Seventh-Day Adventist nurses.**

Kettering Medical Center and Florida Hospital are both owned and operated by the Seventh-Day Adventist Church. During the time period studied, Kettering operated a two-year postsecondary program in nursing and the allied health fields, offering associate degrees at the hospital site. Florida Hospital did not offer a comparable program, but was affiliated with Southern College of Seventh-Day Adventists and several local community college programs, as well as the University of Central Florida. Church membership upon entry into the employing organization was coded when the information was available. Of the Kettering sample, 80.9 percent (N = 161) were able to be coded as either Seventh-Day Adventist or other. In the Florida sample, 85.5 percent (N = 171) were able to be coded similarly. This resulted in a sizable sample suitable for analysis by church membership, to determine what differences might be occurring to individuals on this basis. The data were then divided by church membership and analyzed. The findings of this dichotomy are presented here.

Gender

Comparison by gender revealed (Table 23) a significantly larger percentage of male nurses among the Seventh-Day Adventists (SDA). The data showed 13.3 percent of the SDA nurses being male, while they accounted for only 4 percent of the non-SDA population.

Table 23

Comparison of Gender Distribution Between Seventh-Day Adventist and non-SDA Nurses

	Group 1[a] N	%	Group 2[b] N	%	Combined Total N	%
Males	14	13.3	9	4.0	23	6.9
Females	91	86.7	217	96.0	308	93.1
TOTALS	105	100.0	226	100.0	331	100.0

Chi square = 8.30, 1 df Significance: $p<.01$

[a]Group 1 = Seventh-Day Adventist nurses

[b]Group 2 = Non-Seventh-Day Adventist nurses

Distance Between Secondary and Postsecondary Schools

Comparison of the distances (Table 24) between the two groups showed that the distances between secondary school and postsecondary revealed a significant difference ($t = 2.05$, $p < .05$) in the mobility between the two groups. Seventh-Day Adventist distances ranged from a minimum 0 (same campus) to a maximum of 10,666 miles, with a standard deviation of 1,572 miles, and mean of 584 miles. Among non-Seventh-Day Adventists the distances ranged from a minimum of 0 miles to a maximum of 7,000 miles, with a standard deviation of 808 miles and a mean of 262 miles.

Clearly, Seventh-Day Adventists are more mobile in selection of postsecondary educational institutions.

Table 24

Comparison of Secondary to Postsecondary Distances Between SDA's and non-SDA's

	N	Mean	Minimum	Maximum	S.D.
Group 1 (SDA's)	71	584.24	0.0	10666	1572
Group 2 (non-SDA's)	163	262.85	0.0	7000	808

t = 2.05, 233 df Significance: $p<.05$

Nominal coding of distances between secondary and postsecondary schools yielded significant findings (Chi square = 37.22, $p < .001$) reflected in the descriptive statistics (Table 25). It is interesting to note that the data reflect that a larger percentage of SDA young people must travel to out-of-state locations to stay within church institutions. Among non-SDA youth, the majority clearly stay within the state in obtaining their postsecondary education.

In examining the number of postsecondary schools attended, the data revealed that although the SDA young people are more mobile in choosing the institution, once there they are less apt to change schools. Ninety six percent of those sampled only attended one postsecondary institution. The majority of non-SDA nurses attended one postsecondary institution, but a larger portion attended more than one such school.

Table 25

Comparison of Secondary to Postsecondary Distances Between SDA's and non-SDA's (Nominal Coding)

	Group 1[a] N	%	Group 2[b] N	%	Combined Total N	%
Campus	2	2.8	0	0.0	2	0.9
City	6	8.5	46	28.2	52	22.2
County	0	0.0	1	0.6	1	0.4
State	20	28.2	76	46.6	96	41.0
Country	41	57.7	37	22.7	78	33.3
Continent	0	0.0	0	0.0	1	0.4
Inter-Cont.	2	2.8	2	1.2	4	1.7
TOTALS	71	100.0	163	100.0	234	100.0

Chi square = 37.22, 6 df Significance: $p<.001$

[a]Group 1 = Seventh-Day Adventist sample

[b]Group 2 = Non-Seventh-Day Adventist sample

Educational Level

Analysis of educational levels revealed significant (Table 26) differences (Chi square = 35.57, $p < .001$) between the two groups and the educational degrees held. The associate and bachelor's degrees were tied, with each representing 43.6 percent of the degrees held by SDA nurses, while non-SDA nurses were more nearly divided between associate and diploma degrees, and followed by the bachelor's degree.

Table 26

Comparison of Educational Levels Between SDA Nurses and non-SDA Nurses.

	Group 1[a] N	%	Group 2[b] N	%	Combined Total N	%
Associate	44	43.6	87	41.2	131	42.0
Diploma	9	8.9	76	36.0	85	27.2
Bachelor's	44	43.6	38	18.0	82	26.3
Other	4	4.0	10	4.7	14	4.5
TOTALS	101	100.0	211	100.0	312	100.0

Chi square = 35.58, 3 df Significance: $p<.001$

[a]Group 1 = Seventh-Day Adventist sample

[b]Group 2 = Non-Seventh-Day Adventist sample

Distance Between Postsecondary Institution and First Job

Comparison of the distances (Table 27) between the postsecondary institution and the first job revealed a significant ($t = 3.25$, $p < .05$) difference between where the groups received their training and where they took their first job. The distance between Seventh-Day Adventist nurse's training institution and first job ranged from a minimum of 0 (same campus) to a maximum of 2,500 miles, with a mean of 538 miles.

Table 27

Comparison of Postsecondary to First Job Distances
Between SDA and non-SDA Nurses

	N	Mean	Minimum	Maximum	S.D.
SDA	94	538.25	0.0	2500	715
non-SDA	191	216.97	0.0	7350	724

$t = 3.525$, 283 df Significance: $p<.05$

The same distance for non-Seventh-Day Adventist nurses ranged from a minimum of 0 miles to 7,350 miles, with a mean of 217 miles.

The nominal coding for the same data (Table 28) revealed other significant differences (Chi square = 43.34, $p < .001$) between the two groups. It is interesting to note that 57.6 percent of non-SDA nurses took their first job at the same location as their postsecondary training site, while only 29.8 percent of SDA nurses took their first job at the same location as their postsecondary training site.

The majority of non-SDA nurses tended to stay within their state (79 percent of the sample) whereas the majority of SDA nurses tended to leave their state (56.4 percent of the sample). This finding is consistent with the mobility noted in the previous section. It would appear that mobility in the SDA nurses might begin with the selection of the postsecondary institution.

Table 28

Comparison of Postsecondary to First Job Distances Between SDA and non-SDA Nurses (Nominal Coding)

	Group 1[a]		Group 2[b]		Combined Total	
	N	%	N	%	N	%
Campus	28	29.8	110	57.6	138	48.4
City	0	0.0	6	3.1	6	2.1
County	0	0.0	0	0.0	0	0.0
State	13	13.8	35	18.3	48	16.8
Country	52	55.3	37	19.4	89	31.2
Continent	1	1.1	0	0.0	1	0.4
Inter-Cont.	0	0.0	3	1.6	3	1.1
TOTALS	94	100.0	191	100.0	285	100.0

Chi square = 43.34, 5 df Significance: $p < .001$

[a]Group 1 = Seventh-Day Adventist Nurses

[b]Group 2 = Non-Seventh-Day Adventist Nurses

Entry and Termination Ages

Age at entry into the employing institution (Table 29) differed significantly ($t = 3.761$, $p < .001$) between SDA and non-SDA nurses. The entry age for SDA nurses ranged from a minimum 19 to a maximum age of 52, with a mean age of 25.77 years of age.

Among non-SDA nurses, ages ranged from a minimum of 18 to a maximum of 57, with a mean age of 29.26 years of age.

A similar pattern emerged in examining age at termination with the employing institution (Table 30), differing significantly ($t = 3.508$, $p < .001$) between SDA and non-SDA nurses. The termination age for SDA nurses ranged from a minimum 19 to a maximum age of 52, with a mean age of 27.30 years of age. Among non-SDA nurses, ages ranged from a minimum of 20 to a maximum of 60, with a mean age of 30.60 years of age.

Entry Marital Status

Marital status at both entry and termination was coded, although the lack of sufficient data in termination records made comparison of that data inconclusive at best. Entry marital status was quite routinely coded in personnel records. Comparison of this variable between SDA and non-SDA nurses revealed significant differences (Chi square = 14.69, $p<.01$, Table 31). Notably, the majority of SDA nurses were single, while the majority of non-SDA nurses were married.

Table 29

Comparison of SDA and non-SDA Nurses Entry Ages Between Sample Groups

	N	Mean	Minimum	Maximum	S.D.
SDA	104	25.77	19	52	6.7
non-SDA	217	29.26	18	57	8.2

$t = 3.761$, 319 df Significance: $p<.001$

Table 30

Comparison of SDA and non-SDA Nurses Termination Ages
Between Sample Groups

	N	Mean	Minimum	Maximum	S.D.
SDA	103	27.30	19	52	6.9
non-SDA	218	30.60	20	60	8.2

$t = 3.508$, 319 df Significance: $p<.001$

Table 31

Comparison of Entry Marital Status
Between SDA and non-SDA Nurses

	Group 1[a]		Group 2[b]		Combined Total	
	N	%	N	%	N	%
Single	53	51.5	68	30.9	121	37.5
Married	45	43.7	128	58.2	173	53.6
Separated	1	1.0	1	0.5	2	0.6
Divorced	4	3.9	22	10.0	26	8.0
Widowed	0	0.0	1	0.5	1	0.3
TOTALS	103	100.0	220	100.0	323	100.0

Chi square = 14.69, 4 df Significance: $p < .01$

[a]Group 1 = Seventh-Day Adventist Nurses

[b]Group 2 = Non-Seventh-Day Adventist Nurses

Wages at Entry and Termination

Wages among SDA nurses at entry into the employing organization ranged from a minimum of $2.00 to a maximum of $11.61 per hour. As noted previously in this chapter, several cases studied involved records of when the nurse had been hired as a student, at a wage lower than that paid to registered nurses. In the two or three cases in which this occurred, the researcher was unable to document the wage at the beginning of their career as a registered nurse. The mean wage for SDA nurses in the time period studied was $5.45 per hour.

Wages paid to non-SDA nurses ranged between a minimum of $1.00 and a maximum of $13.41, with a mean wage of $5.90 per hour. Comparison of these wages (Table 32) revealed a significant difference between the two groups ($t = 2.018$, $p < .05$).

Table 32

Comparison of SDA and non-SDA Nurses Entry Wages Between Sample Groups

	N	Mean	Minimum	Maximum	S.D.
SDA	93	5.45	2.00	11.61	5.45
non-SDA	210	5.90	1.00	13.41	5.90

$t = 2.02$, 301 df Significance: $p<.05$

Comparison of wages at termination (Table 33) revealed that SDA nurse wages ranged from a minimum of $4.58 to a maximum of $15.36, with a mean of $6.79 per hour. Non-SDA nurse wages ranged from a minimum of $4.09 to a maximum of $16.13, with a mean of $7.58 per hour. The difference was significant ($t = 2.59$, $p < .05$).

Table 33

Comparison of Termination Wages
Between SDA and non-SDA Nurses

	N	Mean	Minimum	Maximum	S.D.
SDA	68	6.79	4.58	15.36	1.68
non-SDA	147	7.58	4.09	16.14	8.20

$t = 2.59$, 213 df Significance: $p<.05$

Length of Service

Length of service was grouped into periods of twenty-five weeks, and separated by SDA and non-SDA. Comparison of the length of service (Table 34) revealed no difference between the groups. The distribution of the two groups by periods of twenth-five weeks is shown in Table 35. Comparison of the two distributions showed no difference between the two groups. Graphs of the individual groups are shown in Figures 7 and 8. Figure 9 shows both groups together. The patterns resemble the graphs shown earlier in this chapter.

Table 34

Comparison of Length of Service
Between SDA and non-SDA Nurses

	N	Mean	Minimum	Maximum	S.D.
SDA	105	78.36	6	439	74.31
non-SDA	225	75.58	0	408	75.41

$t = .313$, 328 df Significance: $p > .25$

Commuting Distances

Both terminating and commuting distances were coded and the comparison by location shown earlier in this chapter. The same data was analyzed to determine if differences existed between the commuting distances traveled by SDA and non-SDA nurses. The distances traveled by SDA nurses when they entered the employing organization ranged from a minimum of 0 (same campus) to a maximum of 27 miles, with a mean of 4.79 miles. By comparison, non-SDA nurse commuting distances ranged from a minimum of 0 to a maximum of 35 miles, with a mean distance of 9.07 miles. The difference is significant (Table 36) with $t = 4.933$, $p < .001$.

In comparing the commuting distance (Table 37) at termination, it was interesting to note that the figures change only slightly, with the minimums and maximums staying the same. The averages for both groups get smaller, while the level of significance and probability stay the same.

Table 35

Comparison of Length of Service (in Periods of 25 weeks) Between SDA and non-SDA Nurses

	Group 1[a] N	%	Group 2[b] N	%	Combined Total N	%
0 - 25	25	23.81	59	26.22	84	25.5
26 - 51	20	19.05	52	23.11	72	21.8
52 - 77	19	18.10	36	16.00	55	16.7
78 - 103	14	13.33	24	10.67	38	11.5
104 - 129	13	12.38	14	6.22	38	8.2
130 - 155	5	4.76	15	6.67	20	6.1
156 - 181	1	0.95	7	3.11	8	2.4
182 - 207	1	0.95	1	0.44	3	0.6
208 - 233	2	1.90	5	2.22	7	2.1
234 - 259	2	1.90	1	0.44	3	0.9
260 - 285	0	0.00	3	1.33	3	0.9
286 - 311	1	0.95	2	0.89	3	0.9
312 - 337	0	0.00	4	1.78	4	1.2
338 - 363	0	0.00	0	0.00	0	0.0
> 364	2	1.90	2	0.89	4	1.2
TOTALS	105	100.0	225	100.0	330	100.0

Chi square = 12.36, 13 df Significance: $p > .499$

[a]Group 1 = Seventh-Day Adventist Nurses

[b]Group 2 = Non-Seventh-Day Adventist Nurses

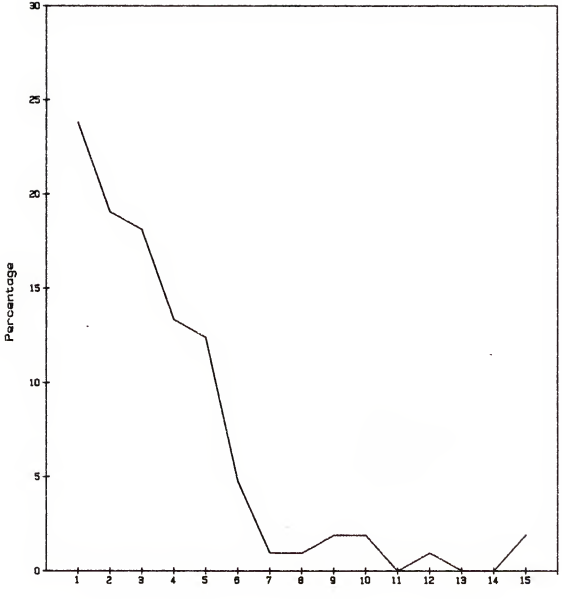


Figure 7: Turnover of Seventh-Day Adventist registered nurses 1972 - 1982. In periods of twenty-five weeks.

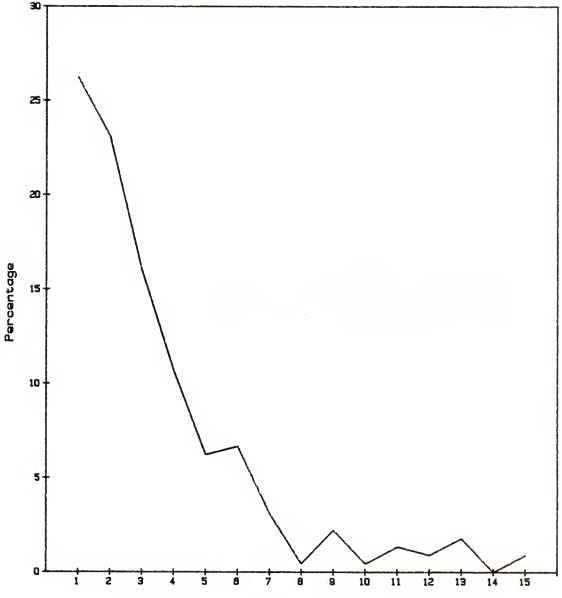


Figure 8: Turnover of non-Seventh-Day Adventist registered nurses 1972 - 1982. In periods of twenty-five weeks.

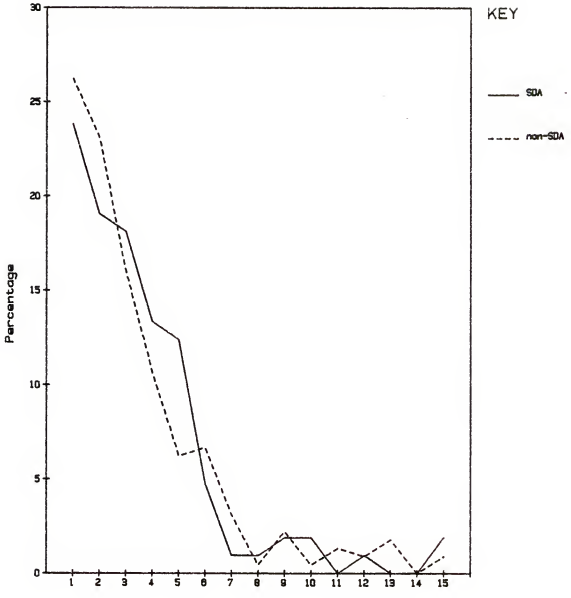


Figure 9: Comparison of Seventh-Day Adventist and non-Seventh-Day Adventist registered nurses 1972 - 1982. In periods of twenty-five weeks.

Table 36

Comparison of Entry Commuting Distance
Between SDA and non-SDA Nurses

	N	Mean	Minimum	Maximum	S.D.
SDA	74	4.793	0	27	7.27
non-SDA	194	9.073	0	35	6.69

$t = 4.93$, 266 df Significance: $p<.001$

Table 37

Comparison of Termination Commuting Distance
Between SDA and non-SDA Nurses

	N	Mean	Minimum	Maximum	S.D.
SDA	74	4.752	0	27	5.19
non-SDA	193	8.871	0	35	6.51

$t = 4.86$, 265 df Significance: $p<.001$

Jobs Held at Termination

Comparison of jobs held at termination (Table 38) revealed significant differences (Chi square = 12.35, $p < .05$) in the level of job classification between SDA nurses and non-SDA nurses.

SDA nurses had a larger percentage of in jobs that are generally considered more supervisory in nature, while 97 percent of the non-SDA nurses were in staff postitons. For example, 9.2 percent of the SDA nurses were assistant head nurses, while 3 percent of the non-SDA nurses were in the same job.

Table 38

Comparison of Jobs Held at Termination
Between SDA and non-SDA Nurses

	Group 1[a]		Group 2[b]		Combined Total	
	N	%	N	%	N	%
Staff	76	87.4	195	97.0	271	94.1
Asst. Head	8	9.2	6	3.0	14	4.9
Clinc. Instr.	1	1.1	0	0.0	1	0.3
Emp. Health	1	1.1	0	0.0	1	0.3
Spc. Care	1	1.1	0	0.0	1	0.3
TOTALS	87	100.0	201	100.0	228	100.0

Chi square = 12.35, 4 df Significance: $p < .05$

[a]Group 1 = Seventh-Day Adventist Nurses

[b]Group 2 = Non-Seventh-Day Adventist Nurses

Reasons for Termination

Comparison of reasons for terminations (Table 39) revealed that SDA nurses are likely to quit their jobs for reasons that are different from non-SDA nurses. The reasons coded were no reason, return to school, marriage, moved due to husband's job, maternity, another job, illness, personal, relocate, and discharged. The distribution of the reasons shows significant differences (Chi square = 39.58, $p < .001$) primarily in the reasons personal and another job. Some of the differences are reflections of demographic differences already presented. For example, the higher percentage of non-SDA nurses being married is reflected in the higher percentage taking maternity leave and moving due to the husband's job.

Summary of Findings

The first null hypothesis postulated that there would be no differences in the demographic and organizational variables in the two nursing groups contributing samples. Had the majority of the variables studied revealed significant differences, there would have been sufficient reason to reject the hypothesis. Since significant differences were discovered in five variables, one of which may have been caused by sampling problems, the first null hypothesis was accepted. Variables showing significant differences were

Table 39

Comparison of Reasons for Termination
Between SDA and non-SDA Nurses

	Group 1[a]		Group 2[b]		Combined Total	
	N	%	N	%	N	%
No Reason	15	14.2	21	9.4	36	10.9
Return to School	14	13.2	9	4.0	23	7.0
Marriage	4	3.8	7	3.1	11	3.3
Moved-Husb. Job	7	6.6	18	8.0	25	7.6
Maternity	2	1.9	15	6.7	17	5.2
Another Job	11	10.4	54	24.1	65	19.7
Illness	0	0.0	2	0.9	2	0.6
Personnal	6	5.7	43	19.2	49	14.8
Relocate	43	40.6	50	22.3	93	28.2
Discharged	4	3.8	5	2.2	9	2.7
TOTALS	106	100.0	224	100.0	330	100.0

Chi square = 39.58, 9 df Significance: $p < .001$

[a]Group 1 = Seventh-Day Adventist Nurses

[b]Group 2 = Non-Seventh-Day Adventist Nurses

1. Comparison of entry educational level showed that the Kettering sample had a significantly larger portion of registered nurses with associate degrees, and the Florida sample had a larger portion of postgraduate degrees.
2. Comparison of commuting distances revealed that the nurses at Kettering live closer to the hospital and have a significantly shorter drive to work.
3. Nurses in the Kettering sample included more jobs generally considered to be higher in prestige. This difference can probably be attributed to difficulties in drawing the Florida sample.
4. The distance between secondary and postsecondary schools was significant between the two groups, with Kettering nurse's schools having been an average of 258 miles. In the Florida sample the distance separating the schools was an average of 568 miles.
5. Reasons given for termination were significantly different with relocation given as the reason for 33.3 percent of the Kettering sample, compared with 23.6 percent of the Florida sample. Relocation was the single largest reason given in both samples.

The second null hypothesis postulated no relationship between selected demographic and organizational variables and the retention of nursing personnel. Regression techniques failed to reveal any variables having predictive value of an individual's length of service.

The data suggested that all of the variables studied have a relationship with length of service; however, when subjected to the rigors of stepwise regression, no such relationship was supported. Given the lack of evidence, the second null hypothesis was accepted.

The third null hypothesis postulated no relationship between retention of nursing personnel in hospitals and the existence of on-site and off-site postsecondary educational programs. Comparison of the length of service by employees in an organization with an on-site postsecondary, and an organization not having such a program failed to show any difference in the length of service by either group of employees. Without sufficient evidence of a significant difference between the length of service between the two groups of nurses, the third null hypothesis was accepted.

The fourth null hypothesis postulated that there would be no differences between Seventh-Day Adventist (SDA) and non-Seventh-Day Adventist (non-SDA) nurses. The significant differences discovered when the sample groups were combined and split on their entry religious preferences are as follows

1. A significantly larger portion of SDA nurses are male.
2. SDA nurses travel a significantly longer distance between secondary and postsecondary schools in obtaining their education than non-SDA nurses.

3. SDA nurses sampled tended to hold either the associate or bachelor's degree, while non-SDA nurses were more evenly distributed between the three degree levels (ADN, Diploma, BSN).

4. SDA nurses tend to take their first job with an organization that is significantly further away from the postsecondary institution.

5. SDA nurses sampled tended significantly to enter the employing organization at a younger age than non-SDA.

6. Significant differences were found in the marital status of the two groups, with more SDA nurses single and a lower percentage of divorced persons.

7. Wages paid to non-SDA nurses were significantly higher than those paid to SDA nurses.

8. Commuting distances were significantly longer for non-SDA nurses than for SDA nurses.

9. Job held at termination studies indicate that the jobs with more responsibility were held by SDA nurses and significantly fewer by non-SDA nurses.

10. Reasons for termination revealed that non-SDA nurses tended to quit for significanlty different reasons, notably personal reasons, and reasons related to the higher percentage of married nurses in the group.

With this large number of significant differences identified between Seventh-Day Adventist and non-Seventh-Day Adventist nurses, the null hypothesis was rejected. There were clearly a number of distinguishing differences between these groups.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction and Summary

The latter days of the 1970s brought with them a shortage of qualified nursing personnel. Many hospitals were forced to close nursing units and curtail services due to the lack of nurses. While the general economic malaise grew worse, the sunbelt area of the United States continued to thrive. The new growth experienced in the area was aggravated by the migration of people leaving the northern tier of states for the South. As new masses of population were demanding health care services, the lack of nurses forced hospitals to become more competitive in their methods for recruiting nurses. Retention of adequate nursing personnel became a major problem.

Florida Hospital in Orlando, Florida, explored a number of alternatives to stem the growing crisis. Among the steps considered was the establishment of a two-year college on the hospital property. It was felt that in other Seventh-day Adventist hospitals which operated such institutions, there was better retention of nursing personnel.

The literature surrounding nursing turnover was rich in studies that had studied the associated problems. Many dealt with job satisfaction and organizational variables that seemed influential in retaining nurses. Many of the studies dealt with why people quit working for an employer and changed jobs.

None had dealt with the question of how proximity may have affected the organization's ability to influence graduates to join the organization as employees once their educational courses were completed.

The problem was to determine whether certain selected variables have predictive effect upon the retention of nursing personnel. A second aspect of the problem was to determine whether the operation of postsecondary educational programs was related to retention of nursing personnel in hospitals with on-site and off-site educational programs. This study was primarily concerned with the comparison of selected demographic and organizational variables that contributed to the retention of nursing personnel. Quantification of an individual's commitment to an employer was difficult because of the numerous variables from the person's personal and professional life that interact with the job and organizational characteristics of the employer. The personnel records of the populations studied were examined to determine which factors were most influential to the retention of individual nurses.

Postulating no significant differences, four null hypotheses were proposed and tested.

I. There are no differences in the status of each demographic and organizational variable of the groups contributing samples.

II. There is no relationship between certain selected demographic and organizational variables and the retention of nursing personnel.

III. There is no relationship between retention of nursing personnel in hospitals and the existence of on-site and off-site postsecondary educational programs.

IV. There are no differences in the status of each demographic and organizational variable of Seventh-Day Adventist and non-Seventh-Day Adventist nurses.

The study compared two populations; 200 registered nurses from Kettering Medical Center, in Kettering, Ohio (which operates an on-site postsecondary educational program leading to the associate degree in nursing), and 200 registered nurses from Florida Hospital, Orlando, Florida (which did not have such a program in operation during the time period under study).

The cases (registered nurses) were selected using random samples from the contributing organizations. The time period under study was from July 1, 1972 through June 30, 1982. Demographic variables included the individual's age, dates of employment, church membership, commuting distance, number of dependents, educational level, wages and marital status. Organizational variables included distances between secondary and postsecondary school, postsecondary institution and first employer, length of service, job held and reason for termination.

The first three null hypotheses had to be accepted. Although some significant differences did occur in the first hypotheses, the majority of the variables showed no significant differences between the sample groups. Hypotheses two and three dealt with the identification of variables having predictive value in projecting the length of service

for a prospective employee, and finding significant differences in the length of service between the two groups studied. No evidence was found to reject either hypothesis, suggesting that the proximity of the postsecondary training program has little influence on an organizations ability to retain nursing personnel. Hypothesis four split the combined sample on the basis of membership in the Seventh-Day Adventist Church. The majority of demographic and organizational variables revealed significant differences leading to a rejection of the fourth null hypothesis.

This chapter discusses the major findings, and presents conclusions and recommendations in regard to each of the four hypotheses. Suggestions for further study and a closing statement complete the dissertation.

Discussion and Conclusions

Several researchers presented in the review of the literature have attempted to identify variables that are associated with employee turnover. If selected variables could be shown to have predictive value in determining a prospective employee's probable length of service, then a strategy could be developed to find or develop those qualities in people.

The demographic variables studied included gender, age, marital status, number of dependents, wages, church membership, educational level, commuting distance, and job held. Organizational variables included distance between secondary and postsecondary institutions, distance between postsecondary institution and first employer, reasons for termination, and length of service.

Hypothesis I: **There are no differences in the demographic and organizational variables of the two nursing groups contributing samples.**

Criteria for rejection of the hypothesis were based on significant differences occurring between the groups in a majority (eight) of the variables examined. Of the variables studied, significant differences between the groups were found in only five out of fourteen of the variables leading the researcher to accept Hypothesis one. The significant differences occurred in the variables educational level, commuting distance, jobs held, distance between secondary and postsecondary schools attended, and reasons for termination. These variables have little relationship to the focus of the study, compared with length of service, and distance between postsecondary institution and first employer.

The difference in the number of nurses holding the various degree levels (the Kettering sample had a much larger portion of nurses holding associate degrees) can be explained when one considers that the largest difference was produced by the high percentage of associate degrees in the Kettering sample. In view of the on-site program, this finding was not surprising. The greater commuting distance found in the Florida group was more easily understood when one considers the surrounding area of the hospitals. Kettering Medical Center is located in what is generally considered one of the nicer middle to upper-middle class suburbs of the metropolitan Dayton area. Florida Hospital is sandwiched between one of the more affluent areas of Orlando, and an interstate corridor with lower-middle class housing; an area that is generally

considered to be a less desirable section of Orlando. These factors usually cause employees to travel a greater distance for suitable housing.

The Kettering sample had a larger variety of nursing jobs whereas nurses in the Florida sample tended to be at one level (staff nurse) resulting in a significant difference in jobs held. This finding may have come about through the difficulty in identifying the population based on the records available at Florida Hospital. This difference in job levels could have come about because of the difference in size of the two institutions, Florida Hospital having about twice the number of beds and a proportionately larger staff.

The significant finding of greater distance between secondary and postsecondary institution in the Florida sample is consistent with other findings in this study which suggest that Floridians tend to be more mobile.

The distribution of reasons given at termination are difficult to explain although they serve as an excellent illustration of the complexity of the turnover problem.

Hypothesis II: **There is no relationship between certain selected demographic and organizational variables and the retention of nursing personnel.**

Initial attempts to regress all of the variables under consideration yielded encouraging results, with a coefficient of multiple determination of $r = .914$, significant to less than .001.

Correlation of some redundant variables revealed high reliability in the data, suggesting strong relationships with many of the variables studied. When subjected to the rigors of stepwise regression, the effect disappeared. The number of cases studied was an adequate sample, however, the lack of complete records for each case made the sample somewhat less than the strength hoped for. Based on the current sample and findings, Hypothesis two must be accepted.

Hypothesis III: There is no relationship between retention of nursing personnel in hospitals and the existence of on-site and off-site postsecondary educational programs.

Comparison of length of service failed to produce any significant difference between the two groups although the data showed that Kettering nurses work an average of eleven weeks longer (retention) than did nurses at Florida Hospital. Nominal coding of the same data failed to produce significant findings. While this data suggest an association between the existence of the two-year program and the slightly longer length of service, there is no empirical evidence to substantiate such a finding.

A finding that should not be overlooked is the fact that in nominal coding of the distance between the postsecondary institution and the first employer, it was revealed that 50.5 percent of the Kettering sample, and 47.1 percent of the Florida sample, took their first job on the same campus. In both samples, these figures were the clear majority.

The researcher noticed this phenomenon as the data were collected. It was evident at both organizations in records where neither of the hospitals studied were the first employer. Clearly there is an association in the existence of such programs with the proximity of the employing organization even though this study failed to reveal the determinants. In view of the lack of evidence to the contrary, Hypothesis three must be accepted.

Hypothesis IV: **There are no differences in the status of each demographic and organizational variable of Seventh-Day Adventist and non-Seventh-Day Adventist nurses.**

Analysis of the same data but separating it by membership in the Seventh-Day Adventist Church led to significant findings in the majority (ten) of the variables studied. Some brief discussion of the specific findings should help the reader understand the role of religious influence and how it contributes to the problem.

In general the data indicated that the Seventh-Day Adventist nurse will

1. Have a larger percent of the population male. Adventist young people are encouraged to join the professions in medicine, education, and ministry.

2. Be more mobile as indicated by the distance between secondary and postsecondary schools, distance between postsecondary school and first job, and live closer to their work place. Attendance at denominational educational programs is encouraged, and supported by an

extensive system of boarding schools (academies) and colleges. Their distribution results in many young people leaving home at thirteen or fourteen years of age. The severing of local ties to the community contribute to their mobility.

3. Are most apt to have either a two-year or four-year degree. The church educational system does not support any diploma nursing programs at present, but has institutions offering both the associate and bachelor's degrees.

4. Work for lower wages on the average and have a longer length of service. The findings of lower wages is consistent with their earlier completion of formal schooling, younger age, and taking their first job with one of the two institution's contributing the samples. Non-Seventh-Day Adventist nurses were more apt to have joined the organization with some experience, resulting in higher wages at both points sampled.

5. Are more apt to be promoted to a position of responsibility. Since their personal beliefs and life style are more consistent with that of the employing organization, this finding is not surprising.

The findings presented here led to a rejection of the fourth null hypothesis. The differences pose an interesting problem for the administration of both institutions. The first is to be sympathetic and responsive to the needs of the non-Seventh-Day Adventist nurse, as well as the Seventh-Day Adventist nurse. The second is to build an equitable personnel resource management system that can provide for the qualities from each group that are essential to the survival of the organization.

Recommendations

1. The personnel department for both Kettering Medical Center and Florida Hospital should undertake a prospective study that would collect this same data and analyze it in an attempt to identify variables having predictive value in assessing prospective employees in terms of their retention or turnover.
2. Work on such a prospective study could involve the literature on job satisfaction and another set of variables that impact on how the individual interfaces with his job and the organization. The findings here suggest that a high percentage of nurses take their first job at the related training institution. Length of service then becomes contingent on the employee-employer relationship.
3. A prospective study should include Seventh-Day Adventist Church membership so that the contributions of this population can be better understood. This study examined the records of leavers from both organizations. Examination of the employment records of current employees might reveal significant differences where religious values are shared by both the employee and organization.
4. Studies of the same variables in public institutions and church-affiliated hospitals of other denominations would help broaden the applicability of these findings to the field of nursing education.

Closing Statement

This study raised many additional questions regarding the role of registered nurses in the function of hospitals. It is apparent that the operation of a two-year postsecondary school on the campus of a hospital will provide a reservoir of well-trained registered nurses. Such schools will doubtless help alleviate the shortage of nurses.

The data indicate that length of service will not be significantly longer in hospitals where such a pre-service nurse training program is in operation. Once the graduate of a training program becomes an employee, the relationship changes and it is the problem of the hospital management and nursing administration as to whether or not they will be able to retain the employee for a long and productive period.

Research into the internal operations of management, nursing leadership and job satisfaction is indicated as the next step in working on employee retention.

APPENDIX

RETENTION DATA COLLECTION FORM

Employee ID #_____ Case #_____

Kettering ( ) Florida ( )

Gender: ( ) Male ( ) Female

Secondary School:

#1_____ Location_____

#2_____ Location_____

#3_____ Location_____

@ Grad_____ Location_____

Distance between Secondary and Postsecondary Institutions:_____Miles

Postsecondary School:

#1_____ Location_____

#2_____ Location_____

#3_____ Location_____

@ Grad_____ Location_____

Degree: ( ) ADN ( ) Diploma ( ) BSN ( ) Other_____

First Employer_____ Location_____

Distance between Postsecondary Institution and Employing Organization:_____

Professional History:

ENTRY:

Date: / /

Age:_____

Marital Status: S M Sep Div W

Dependents:_____

Wage/Hr:_____

SDA or Other

Ed Level:_____

Length of Service (in Months):___

TERMINATION:

Date: / /

Age:_____

Marital Status: S M Sep Div W

Dependents:_____

Wage/Hr:_____

SDA or Other

Ed Level:_____

Commuting Distance:_____Miles

Job Held:_____

Reason for Termination:_____

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BIOGRAPHICAL SKETCH

Reginald Douglas Smith was born in Flint, Michigan, on April 6, 1945. He received his basic education at Andrews University in Berrien Springs, Michigan, graduating in May of 1967. He received his Bachelor of Arts in speech communications, with minors in business administration and education. He began his professional work in education at Clinton High School in Clinton, Michigan, teaching in the areas of business and communications.

In 1966 he joined Dexter Community Schools teaching speech communications and theater arts, and held the postiton of drama director. During his tenure with the school system, he served on the District Curriculum Council, was Chairman of the Language Arts Department, and produced and directed more than 24 dramatic productions. He also advised the Amateur Radio Club and taught photography. His work in revision of the curriculum resulted in a doubling of the number of students electing courses in language arts.

In the summer of 1972 he completed his Master of Arts degree in speech communications, specializing in radio, television, and film at the University of Michigan in Ann Arbor. During the course of his studies he wrote, produced, and directed numerous productions in the specialty areas. During the winter of 1977 he began studies leading to the Master of Business Administration degree at Eastern Michigan

University in Ypsilanti, Michigan. In a beginning course he was introduced to programming business applications in Fortran, starting an interest that has continued into his current professional life.

His studies were interrupted with the relocation of his family and home in Florida during the summer of 1979. His new responsibilities in medical education at Florida Hospital rekindled an interest in doctoral studies in education. The interest had first been expressed in 1974 when he had begun the application process, only to withdraw in consideration of his young family.

Mr. Smith is currently the Director of Systems Management at Florida Hospital in Orlando, Florida. His varied interests are revealed by his membership in several professional organizations, including American Association of Medical Colleges, Alliance for Continuing Medical Education, Society of Teachers of Family Medicine, American Association of Medical Systems and Informatics, Phi Delta Kappa, Mumps Users Group, and Association for Systems Management.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

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I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

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This dissertation was submitted to the Graduate Faculty of the Division of Curriculum and Instruction in the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Education.

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